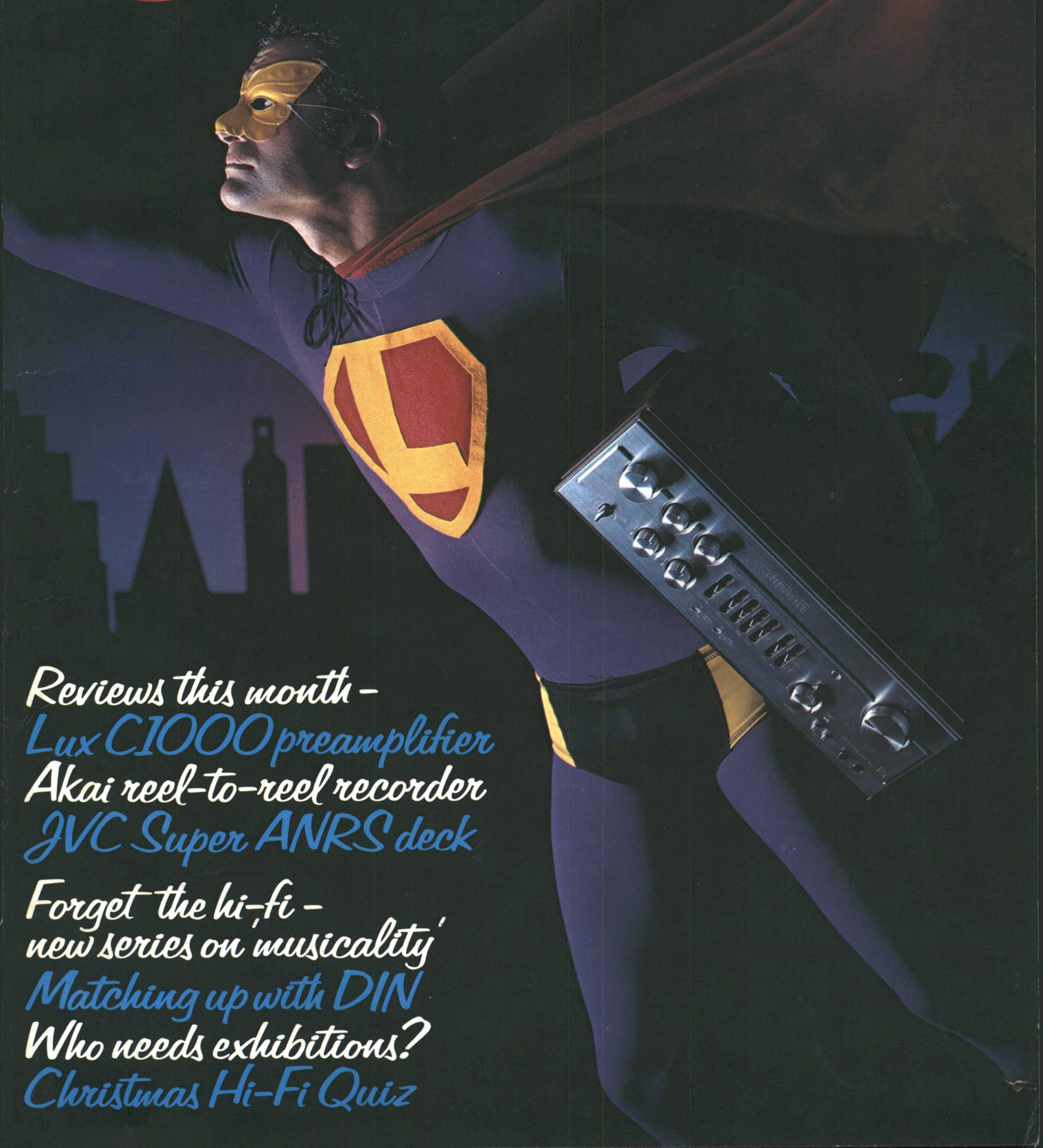


hiFi

for pleasure

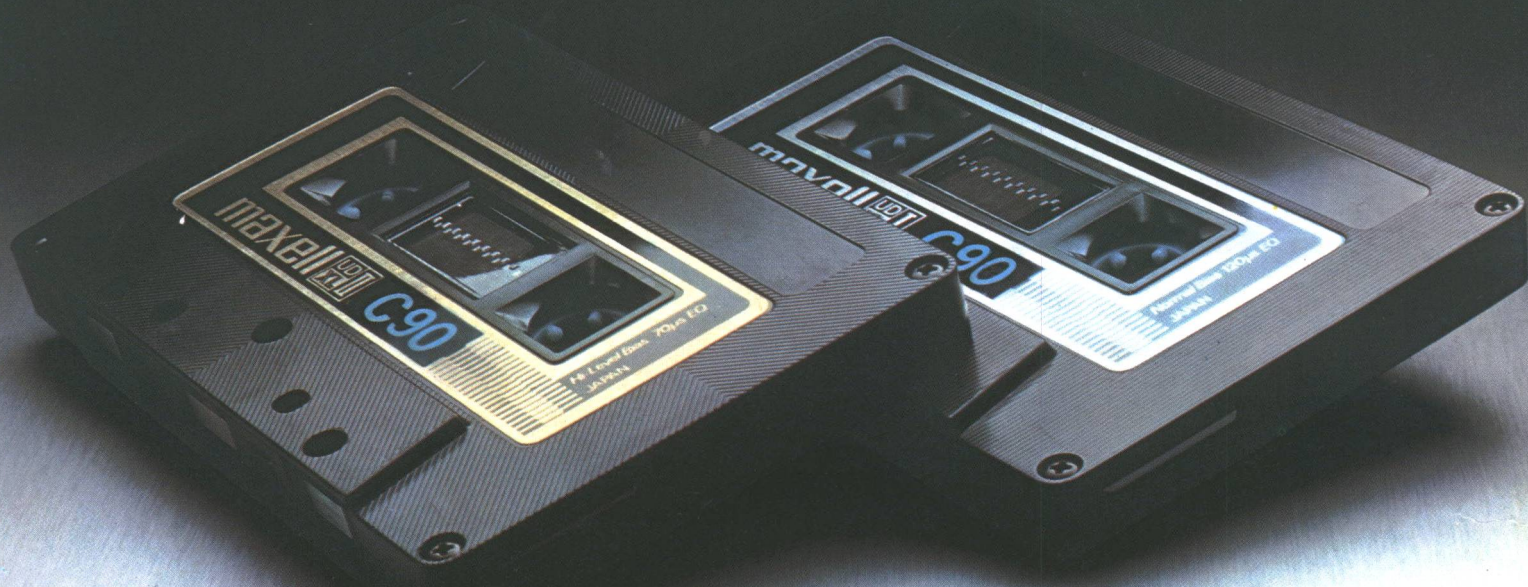
LUXMAN



*Reviews this month -
Lux C1000 preamplifier
Akai reel-to-reel recorder
JVC Super ANRS deck*

*Forget the hi-fi -
new series on 'musicality'
Matching up with DIN
Who needs exhibitions?
Christmas Hi-Fi Quiz*

The competition won't like the sound of this at all.



For nearly two years, other manufacturers have been trying to produce tape with the qualities of the Maxell UD XL.

At the same time, Maxell have been quietly perfecting an even better series.

The new UD XL1 and UD XL11 tapes are designed to attain maximum performance at the ferric and chrome position on your tape deck. And Maxell are confidently making this claim: - whichever tape position you choose, no other cassette tape currently available can give you a better performance.

UD XL1 TAPE, FOR THE FERRIC POSITION (120 μ s)

UD XL1 offers an excellent sensitivity of 1 dB higher than even UD XL. MOL performance is also 1 dB higher over the entire audio frequency spectrum.

The result is a new standard in ferric tape, with wider dynamic range and less distortion than ever before.

How does UD XL1 compare then, with ordinary low-noise tapes?

Sensitivity is higher by 2.5 dB, and MOL performance by as much as 6 dB.

Yet, for all this UD XL1 requires no special bias or equalization. Simply set your tape selector as you normally would at the ferric position - but there the comparison ends.

UD XL11 TAPE, FOR THE CHROME POSITION (70 μ s)

UD XL11 tape is such a dramatic improvement on other tape that can be used in this position, that comparison is really unfair.

For example, if you're familiar with conventional chromium-dioxide tape, you'll know of the associated problems of head wear, poor output uniformity and relatively high price - plus low maximum output level and rather high distortion.

UD XL11 tape offers you excellent MOL, sensitivity, and an out-

put improvement of more than 2 dB over the entire frequency range.

EVEN THE NEW COBALT-DOPED TAPES CAN'T COMPARE

Maxell's unique 'Epitaxial' process guarantees absolute sensitivity and stability, *and no drop-out problems*. What's more, the shells are moulded in diamond cut dies, and made to tolerances 5 times greater than the Philips standard. And, like all Maxell tapes, UD XL11 has the unique 5-second cleaning leader.

In short, if you're recording in the chrome position, you can now achieve all the advantages - with none of the drawbacks.

A prospect we think you'll find very exciting - even if the competition don't.

maxell®
Pay a little extra,
get a whole lot more.

CONTENTS

FEATURES

- 5 Advice
- 43 News
- 53 Christmas quiz
- 55 Letters
- 56 System for Pleasure
- 61 The Price of Addiction
- 64 Who Needs Exhibitions?
- 70 Matching with DIN
- 72 Forget the Hi-Fi

John Peel
Cyril Cunningham
Adrian Hope
Mick Skeet
Peter Commeau

Editor

Trevor Preece

Assistant Editor

Elizabeth Jacques

Advertisement Manager

Dave Webster

Art Director

Stephen Rowley

Production Manager

Ramsay Gillies

Cover Photographer

Chris Holland

Managing Editor

Jack Hutton

Editorial Director

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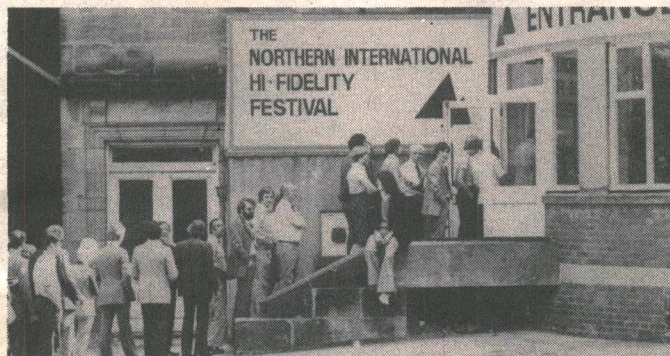
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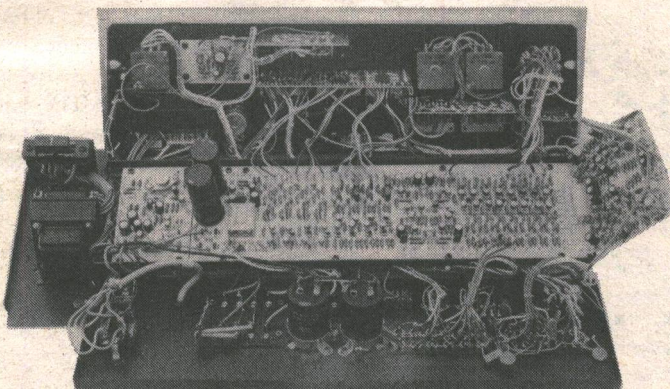
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REVIEWS

- 79 Luxman C1000 preamplifier
- 85 Akai GX265D tape recorder
- 88 JVC 1720B cassette deck

Chris Rogers
F.M. Hughes
F.M. Hughes



MUSIC

- 20 Rock Bands
- 21 Rock Vocal
- 22 Pop
- 22 Soul
- 23 Films and Shows
- 23 Compilations

- 25 Country & Western
- 26 Folk
- 26 Orchestral
- 27 Jazz
- 29 Opera
- 32 Classical



With Christmas upon us all, we have taken a lenient line by dropping 'Lo-Down on Hi-Fi' this month, and instead allow you to test your knowledge of hi-fi. John Peel has drawn up a tortuous quiz which will keep you guessing for hours.

We like exhibitions. You like exhibitions. But for some reasons they've been getting into trouble lately. Exhibitors have been reluctant to enter, and one show recently had to be cancelled as a result. With industry buzzing about it the future looks uncertain. So we set Adrian Hope the task of finding out what could happen if a sensible line is taken. The result of his interviews takes up six pages, starting on page 64.

Reviewing equipment is becoming tricky these days, as the old parameter measurements come under fire by 'musical' critics. To gain some sense out of this conflict we aim, during the next few months, to print as many viewpoints as possible. Peter Comeau starts the ball rolling on page 72.

NEXT MONTH

Six 'cheaper' turntables are lined up for exhaustive testing, plus a Trio cassette deck. The discussion on 'musicality' gains ground, with some intense arguments put forward by a psychologist, Cyril Cunningham. And another System for Pleasure will appear.

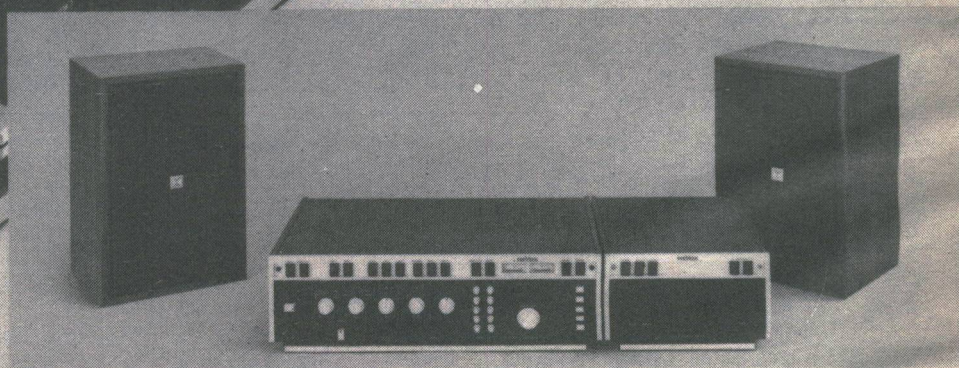


Revox A700 Stereo Tape Recorder

The 'big machine' from Revox which bridges the gap between top ranking amateur recorders and full-blown professional studio equipment.

Two separately adjustable stereo channels with a total of 4 inputs are available, and large VU-meters with additional fast responding peak level indicators make accurate modulation control an easy task. Step-type tone controls for listening via headphones or with a remote switchable power amplifier, built-in phono pre-amplification for magnetic pick-ups and other features, such as stereo echo and variable tape speed (via an accessory unit) open up entirely new possibilities. All this makes the A700 suitable, not only for serious recording work, but also for the audiophile, with high standards of technical quality and operating convenience.

These and the many other outstanding features built into this unique equipment make the A700 probably the finest recorder on the market today. Your Revox dealer can arrange for a demonstration or you can send the coupon for full information on the A700.



Please send me detailed information on the Revox A700 recorder and on the full range of Revox hi-fi equipment.

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STUDER REVOX

ADVICE

Expansion

I am the owner of a Ferguson Studio 6 audio centre.

Although I am aware of the limitations of this type of equipment I feel that some improvement in quality could be made by using speakers other than those supplied. I have in mind such speakers as the Wharfedale Linton 3XP or Glendale 3XP. I wish to seek your advice on the worth of this manoeuvre.

K.R.M.

There is a famous saying related to high fidelity reproduction which states that 'the wider you open the window, the more muck blows in'. This aptly describes the effect of replacing the speakers in a cheaper music centre, as the new speakers will probably show up the deficiencies in the earlier parts of the system. This could either cause you to wish you hadn't bothered, or it will simply accelerate the total replacement of the system.

However, if you wish to try, the amplifier section should be capable of providing at least 5 watts RMS per channel into 8 ohms, allowing Lintons and Glendales to be used. The volume level will not be very high, though, compared with the Ferguson speakers. It will also be worth trying some speakers from Celestion, as these are fairly efficient.

Any port in a storm?

I have a couple of speaker cabinets, of size 2ft 6in. x 1ft 6in. x 1ft, made out of 1in. blockboard, Formica laminate and glue/screws. I wish to put in a kit, say the Glendale 3; would these be sensitive enough for my Sansui AU101 amplifier? Room size is 20 x 9 x 8ft. I could alter the cabinets to include a tuned port for whatever you recommend I put in them.

S.N.

There shouldn't be any trouble using Glendale 3s with your amplifier, and they will also take a more powerful amplifier later should you decide to change things around. There is little point in just throwing a pair of kits into your cabinets without proper adjustment, however, or the sound quality potential will be wasted. You really should shop around Peerless, KEF and Richard Allan, for instance, for details of speaker kits and cabinetry, picking one which matches your boxes. Choice of IB or reflex will also depend upon the kits eventually chosen.

Groove-grinder

I recently purchased an Ultra group Stereo Model 6462B.

This unit has performed satisfactorily on most records, but jumps on some tracks of Bad Company and Bachman Turner Overdrive. Our dealer says that the fault is probably in the cartridge, in that it is

incapable of tracking the particular shape of groove through the full range of modulation. He claims this is a common fault with some of the popular BSR cartridges. Mine is a BSR SX6M, for a recommended weight of 5gm (checked). Will you please advise a suitable alternative cartridge or other solution? J.R.G., Gloucester

This gross form of mistracking is fairly common with inexpensive audio equipment, especially with the 'dynamic' records now available that test the best of hi-fi gear. We doubt whether a satisfactory solution will be found without expensive upgrading, and suggesting an alternative make might well just cost you money to no avail. It might however, be worth returning the cartridge to the manufacturer for checking, just in case it is faulty.

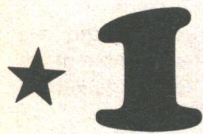
ADVICE

We can help you with your Hi-Fi problem. For a personal reply print your question below and post this form to 'Advice', Hi-Fi For Pleasure, Spotlight House, 1 Benwell Road, Holloway, London N7 7AX. Please enclose a cheque or postal order for £1, and a stamped, self-addressed envelope



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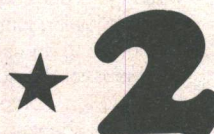
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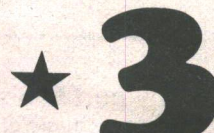
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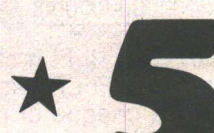
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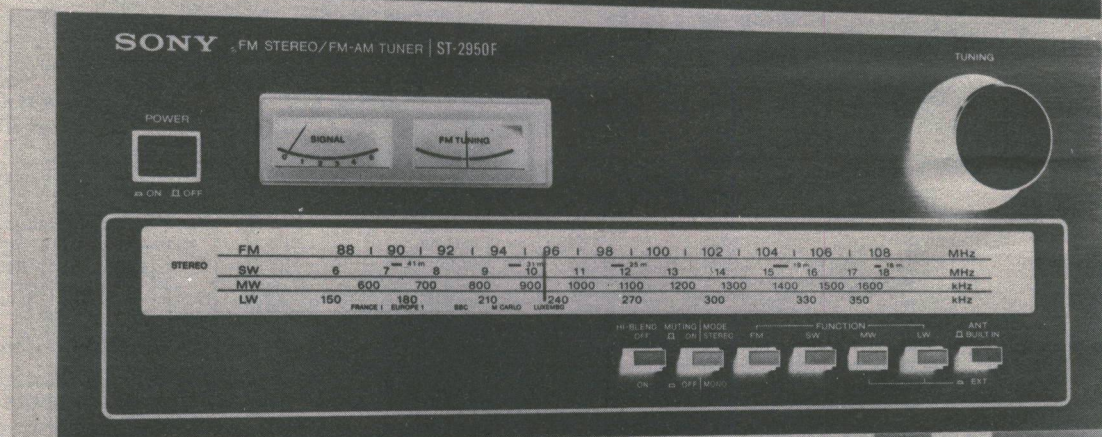
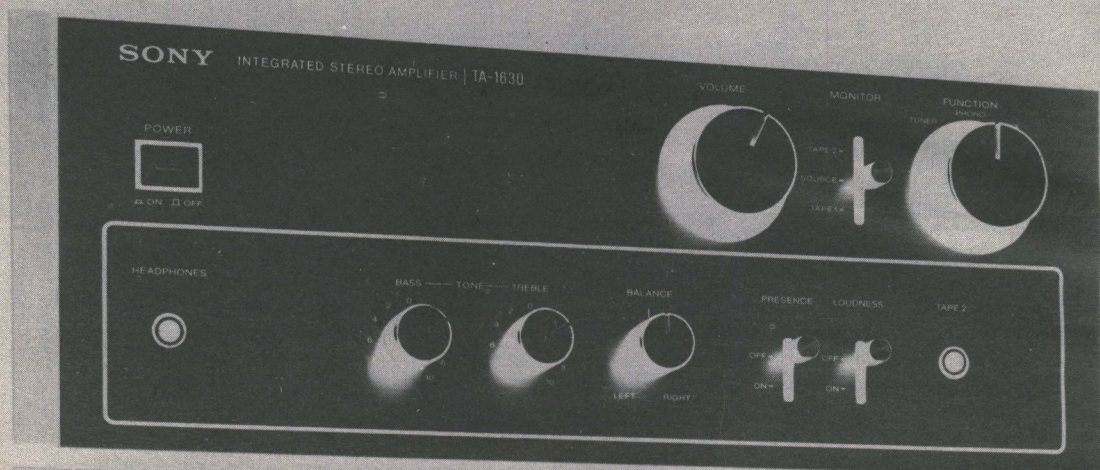
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Why should your ea



rs have all the fun?

Has it ever occurred to you that this magazine is devoted entirely to giving your ears a good time?

That your eyes might feel a little left out?

That the usual hi-fi expert's collection of odd boxes, knobs, wires and switches can hardly be described as a visual feast?

It occurred to us some while ago.

And as you can see, our new amplifier, tuner and cassette deck go a long way towards redressing the balance.

Hi-fi that entertains your eyes.

These new items don't just match electronically.

They actually look as if they're meant to go together.

All three boxes are the same size, with the same finish and matching controls. We've even made the cassette deck a front-loader, so it doesn't have to be kept apart from the others.

This is no haphazard collection of knobs, switches and dials.

Nothing is just for show.

The things that make them look good, aren't there just for show.

Consider the cassette deck.

Those elegant words, "Dolby System,"* mean you'll be listening to music, not hiss.

"Ferrite and Ferrite heads" means the heads last up to 200 times longer than ordinary ones.

One of those chunky switches is an equalisation control for all three kinds of tape. Another controls bias. Another cuts out distortion at unexpected peaks in recording level.

Broadcasting House, plonked in your sitting room.

One look at the long, elegant panel on the tuner will tell you it has four wavebands, not the usual two or three.

The two small dials tell you how strong your

signal is, and let you tune very accurately.

The Hi-Blend button improves weak signals. The muting switch gets rid of interstation hissing.

While inside, lurk a seething mass of such electronic marvels as the FET front end, phase-locked-loop decoders and a uniphase filter.

This tuner practically lifts Broadcasting House into the sky and plonks it in your sitting room.

Do you love your neighbour?

If you love your neighbour, you'll both appreciate the "loudness" switch on the amplifier.

It means you can turn down the volume and still hear the extreme high and low notes.

Do you like the sound of other people's voices?

Then what you need is the "presence" switch. This boosts the middle frequencies to make speech stand out from background noise.

The amplifier also has click-stop bass and treble controls and facilities for two tape recorders.

Inside, a labyrinth of circuitry gives you 22 watts RMS per channel, elaborate protection circuits and direct coupled amplifier circuits.

Even your wallet will smile.

Two final points.

First, these are just three of a new series of eight amplifiers, tuners and cassette decks.

Second, the price.

The amplifier, model TA.1630 costs £84.95. The tuner, model ST.2950F costs £99.95. The cassette deck, model TC.186SD costs £134.95.

When you consider what they do for your eyes and ears, these aren't high prices.

We saw no reason to stop your wallet joining in the fun.

See the complete range of Sony Hi-Fi at your local Sony dealer or the Sony showroom, 134 Regent Street, London W1R 6DJ.

SONY

*Dolby is a registered trade mark of Dolby Labs Inc. All prices are recommended retail, and are correct at time of going to press.

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TUNERS		TURNABLES	
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SA5150	£125.95	CASSETTE DECKS	
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YAMAHA

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QUAD

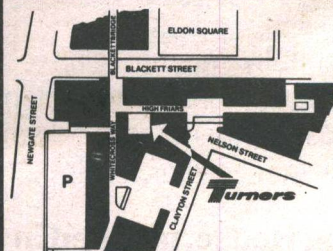
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SONY

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J.V.C. See under JVC Cartridge price includes the Stylus. All genuine items in makers box.

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VN78 (78)	£16.95
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D6800EE	£21.75
D5100EE	£13.95
D5100E	£11.50
Goldring D130	£3.43
D130E	£7.14
D130SE	£10.97
D120SR	£2.81
D110SR	£3.37
D110E	£7.09
D110SE	£11.92
D110 120 (Std) 78	£3.37

MAIL ORDER: Please add carriage & insurance as follows. Amps, Receivers, Decks etc. £2.50. Speakers: £3.50. Items marked* £6.00. Headphones & mics 75p. Cartridges & Stylis 25p (Mainland only). Prices include VAT. We reserve the right to amend prices without notice. E & OE

IMPORTANT NOTICE

Due to the present currency problems we expect many of the prices in this advertisement will have been increased by the manufacturers before this magazine is published. We regret any inconvenience this may cause, but we will be pleased to quote where such changes have occurred. It is our policy to maintain present prices as long as stocks last.

Thank you for your co-operation and understanding of a situation that is beyond our control.

Prices on Application for
ARMSTRONG, BOWERS & WILKINS FONS,
FORMULA 4, KEF, NAKAMICH, QUAD,
TANDBERG, SME, TANNOY, TECHNICS,
YAMAHA.

CASSETTE TAPES

	C45	C90	C120
Maxell			
UD	£0.99	£1.14	£1.30
UDXL		£1.30	£1.63
Super LN		£0.63	£0.82
TDK D	£0.56	£0.65	£0.90
SD		£0.82	£1.15
ED*	£0.80	£1.00	£1.50
SA		£1.15	£1.65
KR*		£1.00	£1.50
TDK Audua		£1.12	£1.60
BASF LH		£0.58	£0.78
Super		£0.85	£1.13
Cr02		£1.13	£1.43
FeCr		£1.43	£1.90
Sony K		£0.60	£0.80
Cr02		£1.23	£1.56

*Limited stock.
Post 15p per Cass. — 30p per 5 Cass. — 45p per 10 Cass.

YAMAHA CENTRES
115 Kingsway (Holborn) WC2
01-405 0446
Full range of Yamaha on
demonstration also at
94 The Parade, Watford, Herts.
Watford 26602

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everything from pocket radios to
Colour TV and Hi-Fi

38 EDGWARE ROAD, LONDON W2
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5 TURNPIKE PARADE, LONDON N15
TEL: 01-888 4373

94 THE PARADE, HIGH STREET,
WATFORD, HERTS. TEL: 92-26602

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TEL: 01-405 0446

4 HIGH STREET, WALTHAMSTOW, E17
TEL: 01-520 4121

4 HADLEY PARADE, HIGH ST, BARNET
TEL: 01-449 8278

152 RYE LANE, PECKHAM, SE15
TEL: 01-639 2205

48 LONDON WALL, LONDON EC2
TEL: 01-628 0537

169 FORE STREET, LONDON N18
TEL: 01-807 2807

857 HIGH ROAD, FINCHLEY, N12
TEL: 01-445 3319

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TEL: 01-272 7901

E.P.S.**SAVE
£££'s****120 at
Shops
near you!****FIGHT
INFLATION!****STAR****OFFERS**

	Low Noise	High Output
C.60	List 1.00 One 54p	Ten 5.19
C.90	List 1.39 One 76p	Ten 7.25
C.120	List 2.09 One 1.12	Ten 10.80

ADD'N STAC-

Interlocking storage system.

Holds 8 cassettes.

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AND VIDEO CASSETTES AVAILABLE
AT SHORT NOTICE. JUST ASK!**SPECIALY RECOMMENDED
AUDIOGRAMM**

	Low Noise	CrO ₂	Ten
C.60	36p	3.50	67p 6.45
C.90	46p	4.50	89p 8.50
C.120	59p	5.70	-

C.90 SELECTION

	List	One	Ten
AGFA SFD (SM)	1.54	1.06	9.65
AGFA CrO ₂ (SM)	2.30	1.26	12.10
FUJI FX	1.86	1.35	13.00
MAXELL UD	2.36	1.50	14.25

	List	One	Ten
MAXELL UD XL	2.95	1.85	17.75
SONY LN	-	96p	9.20
SONY CR	-	1.87	18.00
SCOTCH N/E	1.78	1.19	11.40

**Executive
CASSETTE
CASE**Simulated leather brief
case. Holds 30 cassettes.Worth
£4.00OUR PRICE
ONLY £2.35!**MEMOREX**Reproduction so true
it can shatter glass**MRX:**

Type	List	One	Ten
C.45	1.27	80p	7.65
C.60	1.34	84p	8.00
C.90	1.77	1.14	11.00
C.120	2.44	1.56	15.00



CrO ₂	List	One	Ten
C.45	1.68	1.05	10.10
C.60	1.79	1.12	10.75
C.90	2.55	1.59	15.30
C.120	2.74	1.71	16.46

BLANK CASSETTES**TAPES****ACCESSORIES****5 YEAR GUARANTEE CASSETTES**

ALL OFFERS SUBJECT TO AVAILABILITY. PLEASE PHONE FIRST.

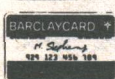
All mail orders to: Dept A/PLF P.O. Box 193, London, N7 8JY. P & P 30p
These prices correct 1.11.76, but subject to change. ALL PRICES INCLUDE VAT AT 8%**GREATER LONDON**

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BROMLEY - J. Payne, 25 Station App. Hayes (462 1293)
CROYDON - Just Tapes, East Croydon Station (651 3062)
FINCHLEY Typewriters, 134 Ballards Lane (346 7195)
FOREST HILL - Teletronic, 76 Brockley Rise (690 3104)
FULHAM - Harry Hayes, 847 Fulham Rd. (756 4591)
GREENWICH - Hane's, 127 Greenwich St. St. (692 3590)
GUILDFORD - Guildford Hi Fi, 270 High St. (71534)
HARWELL - Seba Elec. 104 Uxbridge Road, W.7 (579 5644)
HOLBORN - 56 Trevellick Rd., W.C.1 (405 1535)
HORNCHURCH - Wavemill, 26 Roneo Corner (48182)
ILFORD - Motsons, 347 High Rd. (478 1247)
ISLEWORTH - Alltronic, 348 London Rd. (560 5755)
LOUGHTON - Photomarkets, 152 & 281 High Rd. (508 4838)
MANCHESTER HOUSE Typewriters, 44 Cannon St. (248 1809)
MARBLE ARCH Typewriters, 8 Edgware Rd. (402 8457)
MILL HILL - H. Norman-Davis, 91 The Broadway (959 2049)
MOORGATE Typewriters, 157 Moorgate, E.C.2 (628 4532)
POUNDERS END - Pounds, 260 High St. (804 3000)
PURLEY - Bonaparte Records, 3 Purley Rd. (688 8627)
REGENT STREET Typewriters, 275 Regent St. (629 3627)
RICHMOND - Brandwares, 4 Station App. Kew (940 3758)
SOUTHFIELDS - Estovision, 387 Ousford Rd. (946 0632)
SOUTH HARROW - M. & J. Parks, 4 Station Pde., Northolt Rd. (422 3548)
STREATHAM - Jackson's, 88 Streatham Hill, S.W.2 (474 6607)
THORNTON HEATH - Tracks, 48 Brigstock Rd. (684 4700)
VICTORIA - Recordsville, 86 Wilton Rd. (828 4825)
W. DRAYTON - Rainbow Records, 15 High St. Viewstare (46478)
W. KENSINGTON - H. Hayes, 203 North End Rd. (385 1481)

AROUND BRITAIN

ACOMB (YORK) - R. S. Cuckston, 67 Front St. (York 791502)
AMERSHAM - Record House, 84 Sycamore Rd. (3311)
AYLESBURY - Record House, 34 High Street.
BASINGSTOKE - Hughes, 3 Winkley Centre (28328)
BATH - Fishlock, 53a West Avenue, Oldfield Pk. (27718)
BEACONSFIELD - T. R. Photographics, 9 London End (71263)
BEKHL-ON-SEA - Day's, 21 Western Road (212652)
BIGGLESWADE - H. & H. Domestic, 87 High St. (312960)
BIRMINGHAM 6 - Mousleys, 309 Witton Rd. (327 0582)
BIRMINGHAM 11 - Watiss T.V., 169 Anderton Rd. (772 5429)
BIRMINGHAM 17 - Watiss T.V., 277 High St. Harborne (427 3547)
BIRMINGHAM 20 - Top Ten, 594 Bristol Rd. (472 2463)
BIRMINGHAM 28 - Stringer, 1328 Stratford Rd. (777 2648)
BLACKPOOL - Chammings, 107 Central Drive (28380)
BLACKPOOL - Stewarts Radio, 2 Canine St. (21163)
BLAYDON - Music Box, 34 The Precinct (425 2612)
BOGNOR REGIS - S. E. Smith, 47 Aldwick Rd. (23188)
BOURNEMOUTH - Blacklocks, The Square (21023)
BRIDLINGTON - Bridlington Photo, 8 Bridge St. (5048)
BRIGHTON - D. C. Gunn, 108 Western Rd. (734227)
BRISTOL 3 - T.V. Centre, 135 West St. Bodminster (665691)
BRISTOL 6 - Cuddles, 3 Elton Rd. (36691)
BRISTOL 8 - Revolver Records, The Triangle (299105)
BURNLEY - Record Exchange, 42 Standish St. (35594)
CAMBORNE - Western Service, 70 Telowaren St. (712055)
CARDIFF - Words & Music, 49 Wellfield Rd. Roath Pk. (371472)
CHESHAM - Record House, 9 Market Square (74549)
CLACTON - Moody's, 130 Old Road (22931)

COLCHESTER - R. B. Bacon, 174 Butt Rd. (73295)
CONWAY - Paul A. Roberts, 12 Castle St. (2453)
CONVENTRY - K. W. Leigh, 245 Walsgrave Rd. (458252)
CRAWLEY - Loughran's, 4 Ealing Pl. Broadfield (35000)
DARWEN - Shree's, 287 Blackburn Rd. (71440)
DAYENTY - Spackman & McKenzie, 58 High St. (2617)
EASTBOURNE - Howarth's, 8 Albert Pde. Green St. (21806)
EDINBURGH 9 - Audiolux, 36 Blackford Avenue (667 1644)
FAIRSWORTH - A. J. McKee, 1 Ashdon Rd. East (001 662 7005)
FORBURY - Quirk Electrical, 36 Ryeground Lane (72396)
FORMBY - Quirk Records, 32 Chapel Lane (74048)
FROME - Lancaster Haynes, 10 Catherine Hill (2221)
GILLINGHAM - Smith's, 320 Canterbury St. (Med. 51852)
HARLOW - Photomarkets, 2 Westgate, The High (26155)
HARTLEPOOL - Pattison's, 81 York Rd. (72609)
HEMEL HEMPSTEAD - Old Town Records, 63 High Street (55186)
HEREFORD - Buzz Music, 65 Widemarch St. (55961)
HERTFORD - Back Tracks, 14 Railway St. (59294)
HOVE - D. F. Browne, 418 Portland Road (Brighton 417120)
IPSWICH - Groove, 35 Buttermarket (53181)
LANCASTER - Ear-Ere Records, 14 Market Ent. (61400)
LEICESTER - D. Earl, 40 Hinckley Rd. (548002)
LINCOLN - Lincoln Hi Fi, 271a High St. (20269)
LIVERPOOL 7 - Blacks, 99/101 Wavertree Rd. (263 1112)
LOWESTOFT - Coastline Elec. 168 London Rd. Sh. (64837)
MAIDSTONE - Baldocks, 8 St. Faith's St. (54588)
MANCHESTER - "One Stop Records",
13 Gateway House, Piccadilly Stn. App. (236 8314)
MANCHESTER 8 - "Disc Stop",
10 King Edward Buildings, Cheetham Hill Rd. (740 0894)
NELSON - G. Wilkinson, 55 Netherfield Rd. (62901)
NEWCASTLE-UPON-TYNE - Music Box, 34 The Precinct, Blaydon
NORTHAMPTON - Spin-a-Disc, 19 Abington St. (31144)
NORTHAMPTON - Richard Reeves, 174 Kettering Rd. (33578)
NORWICH - Collins, 25 The Walk, (25548)
NOTTINGHAM - Edy's, 116 Alfreton Rd. (74015)
OXFORD - Belsyre, 59 Woodstock Rd. (55226)
POOLE - Kenneth Sims, 10 Station Rd. Parkstone (746071)
PRESTON - George Seymour, 266 New Hall Lane, (794249)
READING - Gerald Hughes, 14 Cross Street (51975)
REDRUTH - John Oliver, 33 Fore St. (Redruth 6494)
RUGBY - H. Whaley, 7 Sheep St. (2808)
SALISBURY - Higgins & Son, 47 Market Place (27645)
SCARBOROUGH - Derwent, 5 Columbus Ravine (65996)
SLOUGH - Aran Electronics, 60 High St. (31877)
SOUTHAMPTON - Squibb Electronics, 52 Bedford Place (23787)
SOUTHPORT - Audio Corner, 117 Portland St. (37332)
S. SHIELDS - Northern T.V. 230 Stanhope Rd. (4271)
ST. LEONARDS-ON-SEA -
D. S. Douglas, 113 Seaford Road, North (Hastings 428065)
STOCKTON - Lamb & Fowler, 7 High St., Norton (553070)
SWANSEA - Aquarius, Killey Shopping Centre (28787)
SWINDON - Peter Gilbert Cameras, 31 Hawkeley St. (5386)
WAKEFIELD - Richards, 12 Margate, Westgate (73115)
WELLINGBOROUGH - Visual Sounds, 47 Midland Rd. (223061)
WESTGATE - Coastal Elec., 5 Station Rd. (Thanet 32253)
W. WALSINGHAM - Baldocks, 3941 High St. (842331)
WESTON'S MARE - G. Stanton T.V. 67 Orchard St. (23872)
WYTHAM - Dorset Radio, 29 Walpole St. (5729)
WYTHLEY BAY - D.J. Records, 140 Park View (34155)
WILMSLOW - Hi Fi Centre, Green Lane (24766)
YORK - R. S. Cuckston, 412 Huntington Rd. (23415)
YORK - York Photo Audio Centre, 51 Fossigate (56176)

M39**STARTS 9-30am TUES. 28th DEC.**

(closed Saturday 1st January - open Monday 3rd January).

A tremendous selection of top brand equipment will be on offer at specially reduced prices plus many bargains in second-hand, shop-soiled and ex-demonstration stock. There will be equipment from most of the brands listed below at incredible prices and remember - we do not buy in special cheap lines but we do make genuine reductions on top grade equipment.

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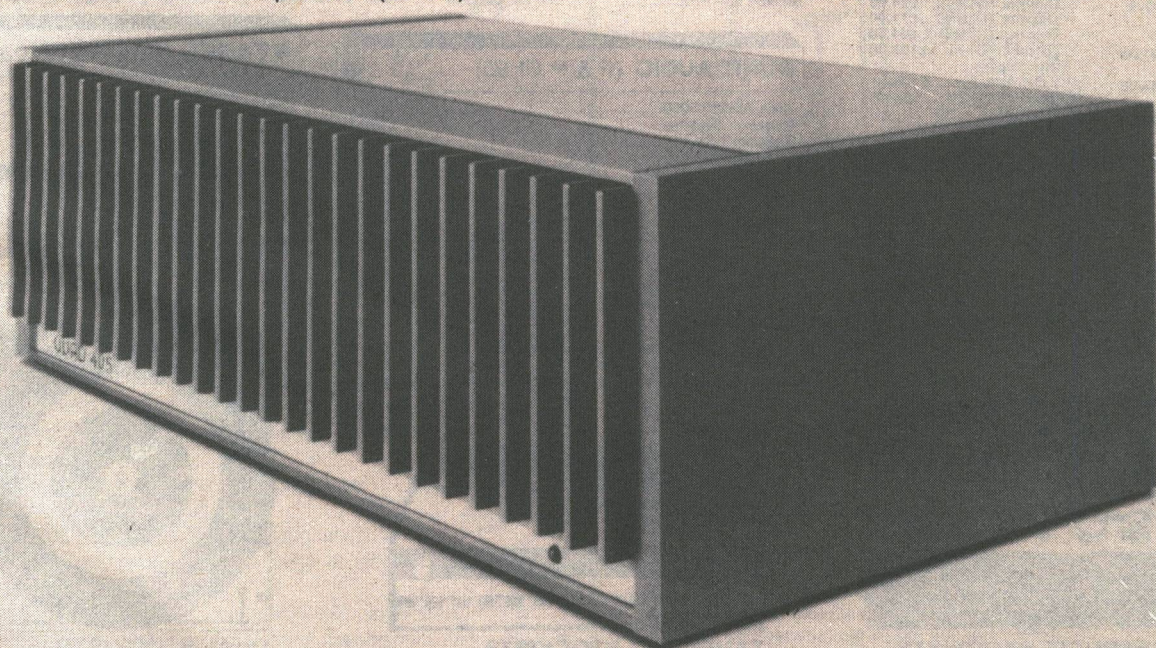
The introduction of the Quad 405 current dumping amplifier represents yet another contribution to the science of sound reproduction.

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Koss K0747.....£21.50	S'heiser HD414.....£13.50
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Acos Lustre.....£25.00	Colton MC101.....£21.00
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Akai 4000DB.....£167.00	Tandberg TCD310.....P.O.R.
Luai 909/919.....P.O.R.	Tandberg 3441.....P.O.R.
Harman Kardon.....P.O.R.	Tandberg 3641.....P.O.R.
HK2000.....P.O.R.	Tandberg 3541.....P.O.R.
JVC 1740.....£89.00	Teac A170.....P.O.R.
Nakamichi 600.....P.O.R.	Teac A400.....P.O.R.
Neal 102.....P.O.R.	Technics Stockists.....P.O.R.
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Pioneer CT6060.....P.O.R.	Yamaha CT800.....P.O.R.

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BSR MP60 P/C.....£24.00	Zero 100SB Mod.....£58.00
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Garrard.....P.O.R.	Thorens TD165C.....£71.00
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(no cart).....£61.00	Trio KD1033.....£54.00

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Tandberg TCD310 (S/S).....£155.00
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Pioneer SX550.....£142.00	Toshiba SA420.....P.O.R.
Pioneer SX650.....£194.00	Trio.....P.O.R.
Revox A76.....P.O.R.	Yamaha CR200.....P.O.R.
Rotel RX152 2.....£84.00	Yamaha CR400.....P.O.R.
Rotel RX402.....£132.00	Yamaha CR450.....P.O.R.

●CARTRIDGES (P & P 50p) STYL

A/Technica AT66.....£4.05	£2.95
A/Technica AT21.....£9.45	£5.63
A/Technica AT21X.....£14.00	£11.78
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ADC VLM.....P.O.R.	P.O.R.
ADC Q32.....P.O.R.	P.O.R.
ADC Q30.....P.O.R.	P.O.R.
Empire.....P.O.R.	P.O.R.
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Golding G800H.....£7.00	£3.37
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Pickering V15/AME3.....£16.00	£15.00
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Shure M44/5.....£8.95	£6.80
Shure M44C/7.....£8.95	£6.80
Shure M55/E.....£10.75	£7.85
Shure M44/E.....£9.65	£6.95
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Shure M75/G.....£15.85	£9.75
Shure M75EJ2.....£14.95	£14.00
Shure M75EJ.....£13.95	£10.10
Shure M95ED.....£18.50	£19.20
Shure V15 (Impr.) Mk III.....£43.95	£19.20
Stanton 68 1EEE.....£44.00	—

●UNIT AUDIO (P & P £1.95)

Aiwa AF5080/5050.....P.O.R.
Dynatron Systems.....P.O.R.
Toshiba Systems.....P.O.R.
Goodmans 1.....P.O.R.
Sanyo G2611K Super.....P.O.R.
Sanyo G2615.....P.O.R.
Yamaha Systems.....P.O.R.
National SG 2070/1070/2500/1020 2080.....P.O.R.

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All prices include VAT at 12½%.

●Closed Mondays. Please telephone for Christmas/New Year opening hours.

●SPEAKERS and KITS (P & P £1.50 ea)

Acoustic.....P.O.R.	Richard Allan.....P.O.R.
Research Mod.....P.O.R.	Chaconne II.....£45.00
B & W.....P.O.R.	Pavane II.....£90.00
Cambridge.....P.O.R.	Minette II.....£39.50
Audio R40/R50.....P.O.R.	Flamenco II (pair).....£64.50
Celestion.....P.O.R.	RA series.....P.O.R.
UL6.....P.O.R.	Kits.....P.O.R.
UL8.....P.O.R.	Trp. 8 (Flamenco).....£43.50
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Ditton 33 (pair).....£133.00	RA kits.....P.O.R.
Dynaco A25 (pair).....P.O.A.	Tannoy.....P.O.R.
Goodmans.....P.O.R.	Devon.....P.O.R.
Mezzo SL.....P.O.R.	Cheviot.....P.O.R.
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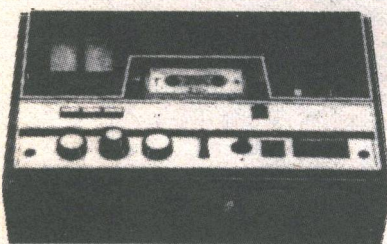
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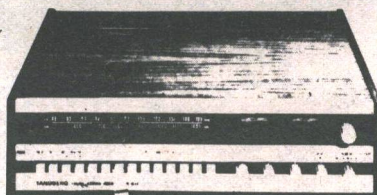
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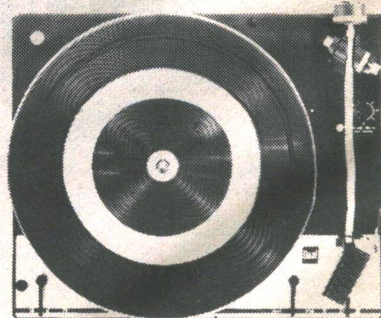
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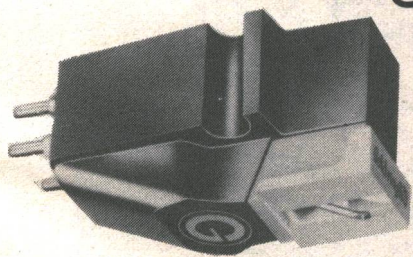
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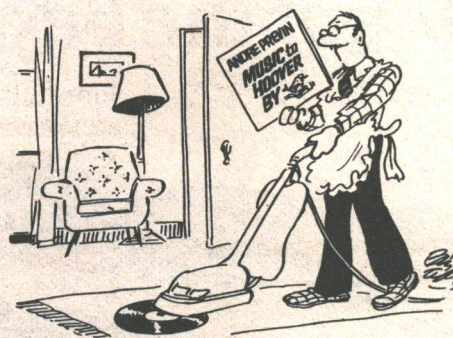
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It gives 40 watts per channel with a distortion of 0.02, it's been praised by all sorts of experts from Gordon King upwards and downwards, and it's a British product. In general, we don't go for things because they're made in Britain, our first and main criterion is quality, and after that it's a question of the ratio between quality and price. People say hi-fi standards are hard to define. We have no problems — we use our ears, but we don't recommend that our customers pay an extra £100 for the privilege of hearing 17,500 cycles instead of a 'mere' 17,000. Most of us can't hear anything about 15,000 anyway. You can gather from all this that the Alba US 900 has our strongest recommendation. It's a first-class amplifier and it's a ridiculous price. We don't own even one share in the company — we just like the product. Going to the other extreme let's talk about cas-

settes for a moment. From time to time we are asked what tape is compatible with what deck, and we've seen surveys on the subject. We reckon that cassette tape falls into the same category as speaker enclosures — it's what your ears like that matters. What's the point of buying a pair of speakers that have wonderful specifications and test results, but that produce a sound that you don't really like? The same applies to cassette compatibility. Ellis still prefers non-Dolby sound and we sell hi-fi? So with cassettes we recommend that you try two or three good makes and make your own choice. Most cassettes are pretty good quality these days.

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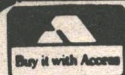
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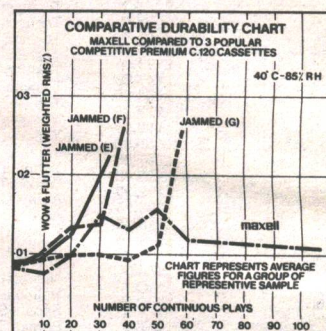


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RECORDS TO BUY

Rock Bands



Sassafras ... just manage to establish an individual personality.

There's a varied crop of albums by British bands out this month. By far the most British, and the one I enjoyed most, is Jack The Lad's **Jackpot** (United Artists UA 29999). Their publicity urges us "forget their associations with groups long since dead". But it's hard to avoid comparisons with Lindisfarne even though drummer Ray Laidlaw is the only member remaining from that group. Fortunately the comparison favours Jack The Lad, who successfully achieve the synthesis of pure Geordie with more American styles which Lindisfarne never quite managed. **Jackpot** is a rich selection of material, much of it by their fine singer Billy Mitchell, all performed with a good humour that never lapses into sloppiness. The single, Andy Fairweather Low's **8 Ton Crazy**, deserved to be a hit but wasn't. J. the L., we are told, want to be known as a 'Beat Group'. Good for them.

I suspect that Sassafras would rather think of themselves as a rock band. This is not to belittle them: they are a very professional and effective rock band, with a good singer, Terry Bennett. Though recorded at Rockville by a Welsh band, the second album, **Riding High** (Chrysalis CHR 1100) has a very American sound and feel with Eagles and CSN and Y overtones. Produced by Pete

Gage, formerly of Vinegar Joe, it threatens to sound anonymous among the many bands adopting similar approaches. Sassafras, however, just manage to establish an individual personality with some unusual songs, notably *The Band Refused To Play*.

The first album by a Scottish group **Cado Belle** (Anchor ANCL 2015) is less impressive. The sound is rather thin and unconfident and the songs too wordy for the would-be funky format. Maggie Reilly has not yet sufficient power or control to stay on top of the arrangements, though she has a potentially fine voice. Still, there are plenty of ideas here and the band could easily gel before their next album. Cado Belle are young and fairly inexperienced so it's no surprise that their album is only so-so: most debut albums are, let's face it. But it's sad when someone with a track record like Chris Stainton's comes up with something as unexciting as **Tundra** (Decca SKL R 5259). Joe Cocker's erstwhile sidekick joins singer-guitarist Glen Turner to produce a patchy and ultimately dull set, all originals except for Chicago's *What More Can I Say* and George Harrison's *I Want To Tell You* — an unlikely choice for revival and not justified by the treatment. Turner plays some impressive guitar and pens a fair tune, though his

singing is not so hot. But the real trouble is the predictability and muzziness of the arrangements.

For all their faults, however, **Tundra** shine like a beacon beside **Pat Travers** (Polydor Super 2383 395) who fronts a raucous three-piece in the old tradition, singing consistently out of tune and playing rather hit-or-miss lead breaks. The band playing Travers' own uninspired material is bad enough; when they start committing nameless atrocities on J. J. Cale's *Magnolia* and Chuck Berry's *Mabellene*, it is surely time to move swiftly on to **You Can't Beat Your Brain For Entertainment** (Anchor ANCL 2016) by Stretch, a fiery rock outfit featuring Elmer Gantry. Remember his Velvet Opera and the semi-classic *Flames*? This is a solid record devoid of gimmickry but with a genuine live feel to it and bags of energy.

More familiar names from the past crop up in the Ian Gillan Band on **Child In Time** (Polydor Deluxe 24901 36). Apart from Gillan himself, famous scream intact since Deep Purple days, we find noted you-name-them-he's-played-with-them

bassist John Gustafson, plus long-time Spencer Davis colleague Ray Fenwick and keyboards player Colin Towns, who was one of the good things about the otherwise slightly insipid Johnny Young Band. An auspicious line-up, and in spite of some signs of having been made in a bit of a hurry and some of self-indulgence, notably on the title track, this is a highly competent album which certainly won't lose Gillan any fans. He's in good voice and the playing is at the right energy level to make it work, without being as monolithic as Purple's. Personally I found the lyrics rather obscure, but perhaps this doesn't matter. They seem to be largely concerned with premature ejaculation.

Unpromising subject-matter, I should have thought, but then I'd have said the same about Black Sabbath's subject-matter, and they have the royalty statements to prove me wrong. **We Sold Our Souls For Rock 'n' Roll** (Nems 6641 335) is an anthology culled from the first six Sabbath albums. There's little point in my knocking it: you can't really argue with the sort of success



Ian Gillan Band ... not so monolithic as Deep Purple.

RECORDS TO BUY

Rock Bands

the band have had. The fact that my brain began to hurt half way through side one of this two-record set won't stop me recommending it as good value to anyone who likes the group and doesn't already have all their records.

And so to our American friends. **The Pousette-Dart Band** (EMI E-ST 11539) is a pleasant album, acoustic-based rock produced in Nashville by Norbert Putnam. Verging on easy listening but nicely done with some excellent singing by Jon Pousette-Dart. **Starz** (Capitol EA-ST 11539), on the other hand, is an unpleasant album. They describe their music as "punk with metaphysical sensibilities", and if that hasn't put you off already then nothing I say will. The drummer is tipped, I hear, to be "The Face Of '76". Peter Frampton was saddled with a similar tag some time ago,



Starz in orbit. 'punk with metaphysical sensibilities'.

and it took him ten years to recover and make it for real. I fancy it will take Joe X. (for Xerox) Dube even longer, if not forever. Orleans should not have to wait so long, judging by **Waking And Dreaming** (Asylum K53044) by Orleans. The band, led by guitarist John Hall — not to be confused with Darryl Hall and John Oates, though the

music is not so very dissimilar — have had American hits with *Dance With Me* and *Still The One*, but, strangely, neither caught on here. *Still The One* is probably the best track on the record, but it's a good album overall, very tight and cleanly produced by Charles Plotkin.

Last Stateside Band on my list is **Creation** (A&M AMLH 64586).

No relation to the early London underground group of that name, these boys are in fact Japanese and have been taken up by the multi-talented Felix Pappalardi, who sings and plays with them as well as producing. Now I wouldn't be prejudiced against any music just because it's played by little yellow men — as a matter of fact the playing is unusually good — but I do feel disappointment that the Global Village is now so much with us that four Japanese rock 'n' rollers make a sound absolutely indistinguishable from American rock. Have they nothing to introduce to the basic format from their own musical heritage? Apparently not, but with that reservation I enjoyed this album, even in spite of Pappalardi's quite limited voice.

Tim Phillips

Compilations

Value minded record and hi-fi enthusiasts with sound memories of the 'Sixties are well served with new series from Decca and Phonogram — parent company of the Philips and Mercury labels.

Philips Sonic Series already has 20-plus albums to its credit covering rock 'n' roll, pop, jazz and Harry Secombe. The catalogue is drawn from Philips, Fontana, Mercury and recent licensing deals with Swan and Laurie.

For rock 'n' rollers of the American teen dream school there's **The Explosive Freddy Cannon** (SON 007) offering *Tallahassee Lassie*, *Palisades Park*, *Buzz-Buzz-A-Diddle-It* and 14 others while **Dion's Greatest Hits** (SON 004) adds classics like *Runaround Sue*, *The Wanderer* and a dozen more.

Vocal group followers should catch **The Chiffons Greatest Hits** (SON 005) for classics like *One Fine Day*, *Sailor Boy* and *He's So Fine* and **The Platters 16 Original Recordings** (SON 002) which covers Buck Ram's buggies from '57 to '62. The

selection includes *The Great Pretender*, *My Prayer* and *Smoke Gets In Your Eyes*.

If jazz gets in your soul try **The Very Best Dinah Washington** (SON 026) whose 16 tracks include *September In the Rain* and *What A Difference A Day Made*. **Sarah Vaughan** (SON 031) includes *Sassy* on *Bill Bailey*, *Lush Life* and *Thou Swell* from the lady's Mercury days. Gentlemen of jazz include **Louis Armstrong And His Friends** (SON 010) in a Flying Dutchman recording from May '70. This is Louis the vocalist on *Mood Indigo*, *What A Wonderful World* and *Give Peace A Chance* with a big string section and friends Thad Jones and Kenny Burrell. The Woody Herman Orchestra, **Live At Basin Street West, Hollywood**, (SON 018) captures May '63 sessions including *Caldonia*, *Body And Soul* and *Days Of Wine And Roses*. Meanwhile, November '69 sessions from Benny Goodman's **The King Of Swing's London Date** (SON 011) which is the big band sound on classics like *Liza* and *You Took Advantage Of Me*

and Beatle standards like *Yesterday*.

Back in Britain, there's a welcome album catalogue return for **Dave Dee, Dozy, Beaky, Mick and Tich whose Greatest Hits** (SON 015) offers 9 Top Ten hits in 12 tracks. There's *Hold Tight*, *Bend It*, *Zabadak* and *The Legend Of Xanadu*.

While Phonogram's been drawing on a wide catalogue of labels and styles for its Sonic set Decca has had to dig no deeper than Sixties London for its Remembering and Roots series. 'Remembering' offers pop compilations characterised by a "thick-bubble" cover design while 'Roots' sticks to rock and covers featuring one of those Decca portable gramophones with an egg crate front.

Instrumental fans are well served by **The Tornadoes** (REM 4) and **Jet Harris And Tony Meehan** (REM 1). Remember *Diamonds*, *Besame Mucho*, *Applejack* and *Scarlett O'Hara* or *Telstar*, *Globetrotter*, *Robot* and *The Ice Cream Man*? — they're all here. You've Got Your Troubles and *Caroline* are

included on **The Fortunes** (REM 2) while Buddy Holly fans will doubtless remember **Dave Berry** (REM 3) whose *Mama*, *The Crying Game* and *Little Things* were causing a big stir in the mid-Sixties.

Back to Roots for **Genesis** (Roots 1), the **Zombies** (Roots 2), **Them** (Roots 3) and **Procol Harum** (Cube Roots 4). These really are collectors items complete with fanzine style sleeve notes, recording dates and release history plus tracks previously unreleased or unavailable on album.

Running time of each album averages 40 plus minutes. Procol Harum is a greatest hits plus package which Genesis offers the main part of their first Decca album 'From Genesis To Revelation'. Van Morrison followers will find five previously unreleased-in-the-UK tracks on **Them** and the market price of second hand **Zombies** singles must take a dive from **The Zombies**' 10 new-to-album items.

Mike Sharman

RECORDS TO BUY

Rock Vocal

I you'll pardon my quaint old-fashioned ways, I think we'll have ladies first this month. And if you think that smacks of condescension, let me assure you that it's entirely justified by one magnificent, truly outstanding record by one of our own home-grown and largely unrecognised hardy perennials, Carol Grimes. Miss Grimes is a hard-working, far-from-glamorous singer who has popped up over the years fronting various bands such as Delivery and Uncle Dog without ever making any great impact.

But her new album, **Carol Grimes** (Decca SKL-R 5258), towers head and shoulders above the other new releases. Recorded in Nashville and Memphis with the help of the Memphis Horns and a group of session men playing flat out as if their lives depended on it, it merges 'Seventies rock with the supercharged power of the unstoppable Stax soul of the mid-'Sixties. Carol takes Bryn Haworth's *I've Been Used*, William Bell's *Private Number* and a handful of equally sparkling numbers composed by Frederick Knight (who also plays some fine piano as part of the session band) and blends them all into a fierce, heady, exhilarating cocktail. It's unpredictable, unexpected and totally irresistible.

But if Carol Grimes is busy emerging from her unsung heroine status, the same cannot be said for Cher. She is one of those extraordinary Americans whose capacity for self-publicity quite outstrips ability to deliver the goods, yet who still manage to convince the world they are star properties. Her new release, **I'd Rather Believe In You** (Warner Bros. K56292) is an impressive, Gothic production, reeking of vast expenditure of money and attention to detail. Yet the overall level is not so very different from the kind of light rock that wins runner-up awards in the Eurovision contest year after year. It's done with a certain elegance of style, but even the selection of material betrays a lack of commitment to any particular direction. There's a touch of the sentimental in Barry

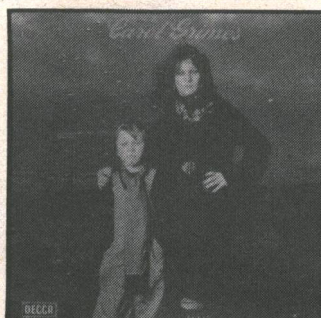


Manilow and Hal David's *Early Morning Strangers*, a spot of soul in the self-conscious version of *Knock On Wood* and mountains of melodrama in *Spring and Silver Wings* and *Golden Rings*.

There's a similar eclecticism at work, though much more successfully, on Helen Reddy's *Music* (Capitol E-ST 11547). Apart from anything else, she's got a track record over the past few years as both a writer and a performer which bears witness to an unusual degree of talent. So when she branches out to do a Maria Muldaur (complete with a very good Amos Garrett impersonation by guitarist Dean Parks) or a slinky blues which owes something to Billie Holiday, you don't lose sight of the fact that these are just illuminating sidelines.

Anne Murray is Canada's other leading lady (though how many people still think of Joni Mitchell as anything other than American nowadays?). She doesn't write her own material. But her handling of other people's songs is very competent, she hits the right notes and her phrasing is occasionally quite inspired. She has plenty of fans here since her *Snowbird* hit and *Keeping In Touch* (Capitol E-ST 11559) should win her quite a few more.

Worlds apart (well, he's got a beard for a start) is Henry Gross, ex-Sha Na Na man and perpetrator of last summer's best novelty hit, the Ivy League-style *Shannon. Release* (Lifesong ELSLP 6002) is a superbly entertaining album, bubbling over with different styles and approaches, from Beach Boys '66 (*Springtime Mama*) to crunching heavy rock and the aforementioned shaggy dog story. Gross has obviously got it firmly into his head that impact



and enjoyment is what popular music is all about. All the songs are written by Henry himself — and besides his infinitely flexible voice and pithy lead guitar, the album also boasts a couple of beautifully constructed sax solos by the talented, but often overworked, David Sanborn. Henry Gross is going to be anything but a one-hit wonder.

And talking of hits, can you imagine Manfred Mann's *Blinded By The Light* single without that nagging, insistent organ hook line? Allan Clarke of the Hollies has just released an album called *I've Got Time* (EMI EMC 3130) which opens with a completely different reading of the Bruce Springsteen song. I don't think this one would have been a chartbuster, but it is tidy, powerful version and a good introduction to what is actually a very accomplished album. The prominent bass and purposeful arrangements highlight Allan's voice nicely. And though it's more than 12 years since the great Hollies trilogy of *Stay*, *Just One Look* and *Here I Go Again* took him to the top, he's still a fine interpreter of high-class music.

Donovan has been in the shadows for some time now, though he made one excellent but neglected album (*Essence To Essence*) a couple of years back. *Slow Down World* (Epic 86011) is in a similar vein — thoughtful, melodic and using the stylistic tricks such as a heavy vibrato on his voice which gave that record its peculiar flavour. But the songs are less obviously attractive here and the mood is sombre, apart from the jaunty *Well Known Has-Been*, which combines Stiff Upper Lip, tongue in cheek and a sound not unlike the Average White Band.

Which brings us, as luck would

have it, to that More Than Average White couple, Johnny and Edgar Winter. Their album, **Together** (Blue Sky SKY 81338) was recorded live in front of a noisy and totally uncritical audience in California. Although the brothers and Rick Derringer each contribute some worthy instrumental breaks, the nett result is awful — mainly because of rotten singing, too many gratuitous "Yeah, yeahs" and shapeless, lacklustre arrangements. You can't slaughter *Soul Man*, *Harlem Shuffle*, *Let The Good Times Roll* and *You've Lost That Loving Feeling* and then make everthing all right just by chucking in a comprehensive R'n'R medley. Least said the better.

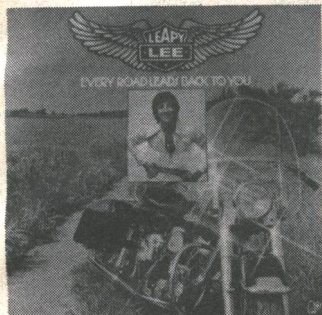
In the male vocal field, there haven't been many voices in pop history as successful, distinctive and at the same time inflexible as Scott Walker's. Since the Walker Brothers are back in business together now, a 1976 vintage album was only to be expected. It's called *Lines* (GTO GTLP 014) and the flavour is mellow, rotund and rather disappointing. Scott is out of his depth on things like Jimmy Cliff's *Many Rivers To Cross* and even the writing talents of Boz Scaggs, Randy Newman and Jesse Winchester can't overcome the slightly musty sameness of the performances.

When one starts to delve into the unbelievably sordid complexities of American radio playlists, with their bias against 'frenetic' records countered by the policy on some stations of playing all singles a couple of r.p.m. too fast, it helps to explain why the oddest people get hits. Barry Manilow, for example. **This One's For You** (Arista ARTY 137) arrived on my desk at the same time as Billy Joel's *Turnstiles*. Manilow is a star these days, while Joel is still dogging around the lower reaches. Yet both albums are competent, moderately interesting, piano-led light rock. The difference seems to be that BM is a smoothy, whereas Billy Joel occasionally gets a bit 'frenetic' — and sounds a lot healthier for it.

Tim Phillips

RECORDS TO BUY

Pop



Morin Heights is a fairly obscure Canadian town where Pilot recorded an LP (EMI EMA 779) of the same name, and a bleak, snow-covered place it looks too. The climate seems to have no ill effects on Pilot, who still sound like the very English group who recorded *January*. Now a little less winsome, a little more sophisticated in their harmonies and lyrics, Pilot have made a record which falls into the strange middle ground between pop triteness and the seriousness, meaning self-indulgent experimentation, beloved of groups who want to sell LPs rather than singles. Not

a bad place to be if you want to make an LP that repays repeated listening and retains the virtues of concision and clarity.

Also recorded in Canada, thus providing us with a tenuous link between one record and the next, is the Bay City Rollers' **Dedication** (Bell SYBEL 8005). Needless to say, large numbers of devoted Rollers fans will buy the LP regardless of content and everyone else will sneer at it, similarly oblivious to its actual merits. The price of such overwhelming success is the snobbery of the LP-buying public with regard to the singles market. Admittedly, the Rollers have an off-putting tendency to indulge in mawkish sentimentality and spoken passages delivered in soft, sincere Scottish whispers. But, oddly enough, when they decide to produce a straightforward piece of really loud rock, like *Money Honey* or *Rock 'n' Roll Love Letter*, they do a thoroughly convincing job. There's not enough of such pure noise and energy here to convert the non-fans, but one day

perhaps the Rollers will amaze us all.

Moving on round the Commonwealth from Canada to Australia, as they say on Family Favourites, we come to **Howzat** by Sherbet (Epic EPC81623). Sherbet, we are told, are the biggest thing in Australia since lager. The dictionary tells us that sherbet is a "childish effervescent drink". Like the drink, the group is probably an acquired taste, best left to Australians and children.

The Rubettes, with their LP **Signs of the Times** (State ETAT006), show that like many good session musicians made good, they have a disarming knack for pastiche and an affection for the simplicity of bygone singles. One track, *You're The Reason Why*, is as good a piece of early Beatles as has been recorded by anyone except the Beatles, only twelve years too late.

Every Road Leads Back to You by Leapy Lee (Bell BELLS267) includes *Little Arrows*, unfortunately, but

otherwise shows him to have an unexpected gift for country music. Pleasantly lightweight Anglo-Nashville, with the traditional country homely sentimentality.

It's difficult to see how the Sandpipers could have a **Greatest Hits LP** (A&M AMLS940) when they only had one real hit. You remember *Guantanamera* — the one with the hilarious spoken bit in the middle — "I am a poor man from the land of the palm trees" — suffice it to say that the other nine tracks are very similar, if you like that kind of thing.

Three LPs this month tie in a desperate struggle to decide which is the most unmemorable. **First Hit** by Arrows (Rak SRAK521) seems dull and outdated — but I could be biased, because they're so good-looking. **The Starland Vocal Band** (RCA RS1074) may have had a hit with *Afternoon Delight*, but their album holds out little hope for further success.

Richard Cassidy

Soul



By a convenient coincidence, this month we have two LPs by graduates, or perhaps escapees, from the most influential soul group of the last ten years. Sly and the Family Stone, of course. While Sly himself seems to have got lost, his former bassist, Larry Graham, has gone from strength to strength. Graham Central Station, with **Mirror** (Warner Brothers K56235), seems to be echoing the progress of the Family Stone, with a leader who does the writing, arranging and production, most of the vocals

and, on some tracks, all the instrumental parts except the drums. Hard to imagine how two such egos could have co-existed in the one group. Graham's religious references burgeon, but otherwise it's the mixture as before, and none the worse for it.

Sly's sister, Rose Banks, has begun her solo career with **Rose** (Tamla Motown STML12024), but his influence lingers on — not surprisingly, as her group includes Pat Rizzo, the Family Stone sax player. Her voice is as good as it was on all your

favourites from the good old days, the bass pounds away — in fact, this month there are two LPs to restore the enthusiasm of Stone followers tired of waiting for the man himself.

Those with simpler tastes who just want to hustle with every muscle, as they say, would be more interested in **Time Moves On**, by Strutt (Brunswick BRLS3021) and **Too Hot To Handle** by Heatwave (GTO GTLP013). Strutt are from New Jersey, Heatwave are a cosmopolitan bunch (two black Americans, a Czech, a Spaniard and a keyboards player from Cleethorpes), but they both exude the kind of heavy funk that can only be developed by years of hard playing in small sweaty clubs for audiences unimpressed by glamour and only interested in music that will make them get on the floor and dance.

The other sort of dance music, the slick disco sound produced

by Van McCoy's set of interchangeable nonentities, now sounds very dated. The same tired old clichés proliferate on **Life Goes On** by Faith Hope and Charity (RCA RS1069), and at second-hand on **A Love Trilogy** by Donna Summer (GTO GTLP010). Donna and the Munich automatons have surpassed even their previous effort in reducing disco music to metronomic rhythm and heavy breathing. In pursuit of sensuality they achieve the last word in sterility.

At least Diana Ross never sounds like a machine, but her **Greatest Hits Vol. 2** (Tamla Motown STML12036) is something of a misnomer. Only five of the twelve tracks could really be described as hits, the remainder being just glossy filler. But as she seems more interested in films than music these days, it probably doesn't matter.

Richard Cassidy

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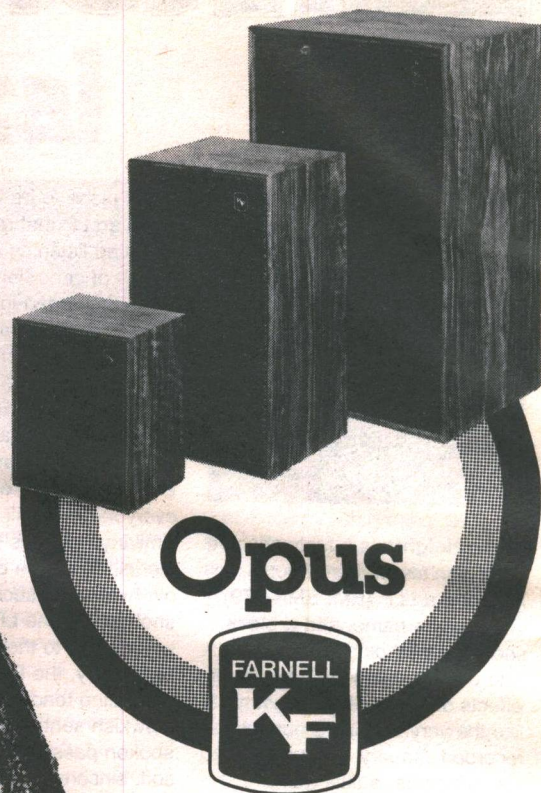
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RECORDS TO BUY

Films and Shows



Leave Him to Heaven

It's probably a bit early to start claiming that we are in another Golden Age of the Musical. But in view of the fact that everyone has been writing the musical off as an obsolete, over-expensive and thoroughly passe art-form for ten, fifteen or even twenty years, it seems to be in remarkably good shape at the moment.

Both on stage and on film there's a lot of it about just now. And any decade which has already given us Twiggy and **The Boy Friend**, Tim Curry and **The Rocky Horror Show**, two David

Essex rock musicals, the elegant **Very Good Eddie**, **The Black Mikado** and **Ipi Tombi** is not doing too badly.

Two young, vigorous musicals hit the West End last summer, one straight from the bright lights of Broadway, the other from Watford. The soundtrack albums from both have recently been released — and that's about everything they have in common.

A Chorus Line (CBS 70149), as you probably know by now, is simply that, the story of the gradual and often painful process by which a varied bunch of hopeful and hung-up hoofers is welded into that most imposing and anonymous machine-like unit that makes the star out front look a hundred times better than he really is. The songs and music are so much an integral part of the total effect that reviewing the record as a separate entity is like writing a review of the commentary to the Miss World contest. But even so, the quality of the music and the rugged realism of the lyrics, by Ed Kleban, shines through. *One*, the big number towards which all the heartbreak and effort is

ultimately directed, is a fine bit of writing within the great musical tradition.

A Chorus Line has twelve songs, including the reprise of *One*. **Leave Him To Heaven** (Chrysalis CHR 1118) has something over 40. I haven't seen it; but in this case the soundtrack album certainly ought to be able to bear a review in its own right. It is the story of a mythical '50s pop star who goes by the unlikely name of Conway Terle (which after all is far more likely than, say, Billy Fury or Adam Faith). The album consists of loving and reasonably accurate recreations, mainly by the star, Brian 'Pinball' Protheroe, of such doo-wop classics as *The Great Pretender*, *Teenager In Love*, the Shangri-Las' *Never Go Home Anymore*, (*Give Him A Great Big Kiss* and real Rock and Roll like *Chantilly Lace*, *Tutti-Frutti* and *Rock Around The Clock*. Good clean fun, with a lick of grease and some outstanding piano playing by Neil McArthur.

Real, grown-up star Paul Williams wrote the score for **Bugsy Malone** (Polydor De Luxe

2442 142), the sub-teenage opera which took the short-cut straight onto film without bothering to appear as a stage show first. Williams is a real professional and the songs are quite dazzlingly imaginative, particularly the girls' numbers, *My Name Is Tallulah* and Blousey's two solos. Forget the film itself, if you like. As a straight songwriter's album this beats most of the opposition hollow.

Two more film soundtracks, **Ode To Billy Joe** (Warners-K56258) and **Mother, Jugs and Speed** (A & M AMLH 64590), will be chiefly significant for offering radio producers a non-needle time version of Bobbie Gentry's classic and the live take of Frampton's *Show Me The Way*, as well as some raw country on the one and tracks by Billy Preston and the Crusaders on the other.

But Jose Feliciano's music for *Aaron Loves Angela* (the album is actually called just *Angela* (Private Stock PVL 1010), is custom-made and shows signs of the vitality he seemed to have lost touch with.

Vocal



Strange happenings in this neck of the woods this month — Perry Como singing a song best-known as a Rolling Stones R 'n' B classic, Johnny Mathis ridding Diana Ross and Tony Bennett covering a Wings single. Plus a 20-hit Dean Martin collection which leaves out *Gentle On My Mind* and an Edith Piaf album without any of her great hits, except for an instrumental version of *La Vie En Rose*.

But first, an unexpectedly pleasant surprise. Julie Rogers

has been around for a long time since her 1964 hit with *The Wedding* without ever really making it to the top. So it's nice to be able to recommend **My Name Is Julie** (Pye NSPL 18501) for overall style, variety and a surprisingly emphatic version of *Tears On My Pillow*. Her voice is like a cross between Karen Carpenter and Dusty Springfield. And anyone who remembers that superb **Dusty In Memphis** album a few years back will know it's quite a compliment when I say that it sprang to mind as I listened to this carefully arranged, faintly country-flavoured set.

Back to the recognised Big League and the smooth, amiable tones of Perry Como, recorded in 1959, on **Perry Como Swings** (RCA Starcall HY 1035). Considering the man's obvious talents, it's extraordinary that large chunks of his career were

hung round with ineffably stupid novelty numbers like *Delaware* (You remember, 'What Did Delaware, boy . . . etc.'). To think that this session, which includes a swing band arrangement of *Route 66* and a breakneck *St. Louis Blues* is virtually coeval with *Delaware* makes you realise that the record business has always been just as lunatic as it is now. Como's voice and phrasing were in good shape then, just far enough away from Bing to maintain their individuality and slotting neatly into the swing background. Recommended, even if you are not a fan!

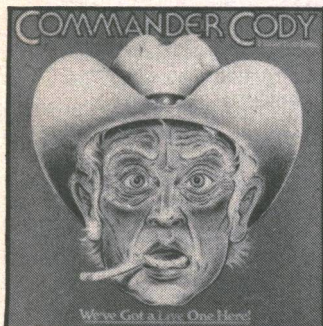
Johnny Mathis is one of those infuriating people who manage to confound your prejudices simply by being awfully good at what they do. I've never liked him, but I must confess he handles the material on **I Only Have Eyes For You** (CBS 81329) with

considerable verve. The title track, for example, is turned on its head and comes out as high class, medium-weight rock, complete with a booting sax solo from one of the excellent, though uncredited, session musicians. He tackles Neil Sedaka's *The Hungry Years*, the Theme From *Mahogany* (*Do You Know Where You're Going To*) and *Send In The Clowns* and emerges with colours flying from each of them. I suppose that's what's meant by versatility. **Ian Elliott Shircore**



RECORDS TO BUY

Country

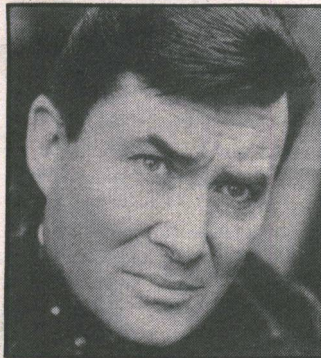


I remember getting the first album by Commander Cody and his Lost Planet Airmen. Unlike the LA cowboys, the band's maudlin tendency was genuine, there were no psychedelic prairies in their eyes and they were no virtuosos: they had three or four more-or-less lead guitarists bobbing up and down together. But their affection for country music and the then-unfashionable Western Swing was real and knowledgeable. They were equally far from the straightlaced orthodoxies of Nashville; bothered people would often conclude that they were 'Humour'. **We've Got A Live One Here** (Warner Bros K 66043) is their last if they're to be believed, a live double recorded on their recent English tour. Seeing them live it was obvious that something had changed. By comparison with the earlier live **Armadillo**, Live One bears this out. Armadillo was funny, exciting and very erratic. Live One is suddenly capable and authoritative. Cody play like an ensemble, and real country

music for a change. There's still their other stuff — the truck driver songs, the vintage rock and roll — but now Cody finally feel essentially like a country outfit, and maybe that's why they gave up because it's not what they're best at. Their live albums are better than the studio ones, and this one is good to have. It's just that the earlier one was amazing and unique. Asleep At The Wheel follows a bit in Cody's tracks, playing Western Swing with less dash than Cody and less finesse than Dan Hicks' band, whom they resemble more. **Wheelin' and Dealin'** (Capitol E-ST 11546) is pleasant within limits and features their single, the smoothed out *Route 66*.

Real Country (like Real Jazz) tends to involve more singlemindedness than these college kids tend to be able to manage. there is often an obsessive and humourless edge to it. **Willie Nelson Live** (RCA LSA 3277, subtitled *I Gotta Get Drunk*) comes across like one of those men you allow to hammer you on the back in pubs, for fear of worse. His audience, aficionados in Texas, encourage him. The reverse side of the same thing is the sweet intensity of someone like Dolly Parton, who would be less powerful outside the self-assured medium she's used to. In fact, her **All I Can Do** (RCA RS-1068) seems to be aimed more than usual at a middle-of-the-road audience. It has some nicely crafted songs, mainly by her, and she sings

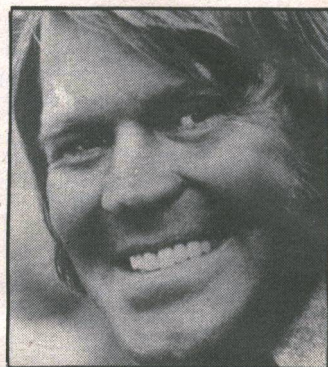
them faultlessly so it's probably unfair to complain. But the album is not amazing and sometimes she is. Like Dolly Parton, Jean Shepard has no claims on being a world entertainer. She's pictured in funkily out-of-focus chiffon on the cover of **Mercy, Ain't Love Good** (United Artists UAS 29974) and sings sometimes a little wild-eyed, one imagines. And she sings movingly too, backed by the Jordanares, who of course have heavy associations of their own. I liked it quite a lot. You can also feel the self-protesting orthodoxies of country music around Don Gibson. You don't have to sing country music to be doleful (Leonard Cohen doesn't and is), but only in country music are you quite so free to explore the exact nature of your own dolefulness. Don Gibson, as



Don Gibson

revealed on **Don't Stop Loving Me** (DJM DJF 20477), has an attractively fuzzy dolefulness rather at odds with his songs, which can be more bitter when sung by other people.

Linda Ronstadt isn't in the country tradition, being more LA chanteuse by way of Peter, Paul and Mary. She sings country songs, but so do other LA chanteuses, along with a reggae track and something from the 'Thirties. Unlike the more knowing Muldaur, Raitt and Waldman, she is quite suited to it. She has a lovely voice which can carry tragedy better than any of them, in the same humourless way that Dolly Parton can. She hasn't always been such a great interpreter of songs and has allowed herself in the past to smother Randy Newman's work, for example, in quite inappropriate colour. **Hasten Down The Wind** (Asylum K



Glen Campbell

53045) has no obvious songs on it, and the instrumentation is spare, doing her voice full justice. She sings with a lot of feeling, as always, and a lot of care, as not always. An album to get hold of.

Some reissues. **A Golden Hour of the Best of Buffy Sainte Marie** (GH 852) could not, having 23 of her Vanguard-era songs, be anything approaching bad. The records are taken from are among the great records of the late 'Sixties. It's not a very imaginative choice though; nothing very political and nothing very spooky. Buy the originals or buy her **Sweet America** if you want to be up to the minute. Glen Campbell's **Twenty Golden Greats** (Capitol EMTV 2) has his great Jim Webb songs, *Galveston*, *Wichita Lineman* and others, planted at strategic intervals with less exciting stuff in between. He's one of the most good-natured of light entertainment singers, and those two songs in particular always bring a far-away look to the eye. Charlie Rich's lumbering sentimentality is more sinister. The persona in his songs is not unlike the stock character in the American TV cop shows, the basically good man driven murderous by love. His **Greatest Hits** are on Epic EPC 81478. **The Best of the Poso Seco Singers** (Emerald Green GES 1143) features Don Williams, but not that much. It also has some particularly flat cover versions, including one of George Harrison's *Something* in which they sing 'Strawberry Fields Forever' at the end of some of the lines. This, as schoolmasters of the old sort used to say, is neither clever nor funny. Robin Bynoe



Wheelin' and Dealin' - from Asleep at the Wheel

RECORDS TO BUY

Orchestral



Far and away the most fascinating orchestral and instrumental music released recently is a beautifully-produced set of six albums called **The Golden Age of British Dance Bands** (EMI SH361-366). It's a massive project, covering the period from 1925 to 1939, from the New Princes Toronto Band with their exuberant reading of *Paddlin' Madelin' Home* to Joe Loss and *Begin The Beguine*. The set is broken down into strict chronological divisions, each album covering just two or three years with a selection of 16 tracks from its allotted span. Highlights abound, from the humour and sheer joy of silly songs like *The Savoy Orpheans' Vo-Do-Do-De-O Blues* and the

work of Syd Seymour and His Mad Hatters to great singers like Al Bowlly and Denny Dennis and a host of brilliant soloists, both home-grown and imported. Each album is supplied with copious, thoughtful and comprehensive sleeve-notes which form a handy guide to the everchanging styles and personnel of those bustling, busy musical days. Above all, though, the set proves a powerful reminder of the fact that there was a time (and a good time, too) when there was no dividing line between dance music and jazz and when the very best musicians of a fertile age were only too happy to fit their talents to a format which could speak straight to the man in the street.

Nowadays, of course, it's all different. For instance, it's a well-known fact that the world is utterly divided into two camps over James Last. You either like him or hate him, particularly if you don't bother to listen to the records. But his new album, **Rock Me Gently** (Polydor Super 2371 584) is going to surprise a few people. It is sub-titled "A Tribute to the Great Canadian Songwriters" and it ranges from

R. Dean Taylor (*Indiana Wants Me*) to a well-judged version of Robbie Robertson's *The Night They Drove Old Dixie Down*. In fact, the title track is at least on a par with the original hit single, powered along by a rumbling bass line and nicely controlled vocals. The Canada theme is a good, if unexpected, idea and it's all carried through with skill.

Altogether less impressive, more schmaltsy and finally really irritating are the two releases by Kai Warner, **Romantic Songs** (Polydor Special 2482 284) and **Summer Dancing** (Polydor Super 2371 420). There may be some excuse in that they were recorded in 1970 and 1973 respectively, but if Herr Warner is planning anything more quite as glib as these, I suggest James Last should have a fraternal word in his ear and sort him out. He's bringing the family names into disrepute.

Last's rival at the top of his particular tree, Bert Kaempfert, has also come out with two new releases recently, though one of them, **Everybody Loves Somebody**, actually consists of tracks recorded over several years. The proper new one,

Contemporary Kaempfert, (Polydor Super 2310 456) is rather muted compared with much of his recent work. But it has some very mellow flugelhorn from Ack van Rooyen and four Kaempfert-composed tunes, besides things like *The Way We Were* and *Rhinestone Cowboy*. And it's stamped throughout with that careful, understated flair that Kaempfert has developed over the last few years. As if to prove my point, the older recordings on *Everybody Loves Somebody* are definitely the weakest. The best things here are the surprises: Laura Nyro's *Stoney End* and *Blueberry Hill*, neither of which would leap to mind as obvious Kaempfert-fodder.

Ian Elliott Shircore



Folk

In the 'Sixties the American Vanguard label introduced all the seminal 'pop folkies' who brought the genre its burst of glory. Pye have ransacked the vaults for the **Golden Hour Presents the Best of Folk**, (Pye GH855. Cassette available) playing it straight with standard cuts from standard operators such as The Rooftop Singers, The Weavers and The Clancy Brothers and Lou Killen. Still, this collection is valuable for earliest examples of Joan Baez, Eric Andersen, John Hammond and Mimi and Richard Farina. And Vanguard albums were always impeccably produced. In almost every case, however, each of the artists — particularly Odetta and Baez — would have been better served by a more imaginative selection of tracks.

Genuine originals to varying degrees are Planxty, The Bothy

Band and The Dransfields.

Sadly, Planxty are no longer with us, but Polydor has released **The Planxty Collection**, (Polydor Super 2382 394. Cassette available.) a compilation of the best material from their three albums. Planxty were important because they combined the genuine traditionalism of Irish music, particularly through the piping of the brilliant Liam O'Flynn, with international musical influences such as Andy Irvine's whimsical infatuation with bouzoukis and Eastern European folk music. Including the hitherto unrecorded mono version of their 'hit single' **Cliffs of Dooneen**, The Planxty Collection chronicles the development of a remarkable band.

The Dransfields, tiring no doubt of the

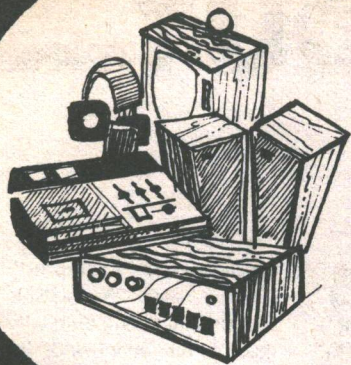
academically-researched floor spot, have crashed the folk boundaries and produced a truly inventive LP of original songs retaining traditional style and flavour. **The Fiddler's Dream** (Transatlantic TRA 322) a real joy, full of such eccentricities as an electric dulcimer and two re-workings of the atavistic *Blacksmith*. The fiddle work is also electric and exciting and it adds continuity to what sounds suspiciously like a 'loose concept' album. Never mind. The Fiddler's Dream is worth a listen and anybody's money.

And transcending all folk bounds, Steeleye Span aren't exactly a folk band anymore, more of a pleasant little rock ensemble. As produced by Womble supremo Mike Batt, **Rocket Cottage** (Chrysalis CHR 1123) owes a great deal to folk

roots but is highly-produced in full rock style with loud electric instruments and drums. The musicianship — with the exception of Peter Knight's inspiring fiddle (*Nathan's Reel* deserves a mention) and, as always, Maddy Prior's exceptional vocal work, stunning in range, pitch and interpretation — is pedestrian. At the departure of Martin Carthy and Ashley Hutchings, Steeleye began to content themselves with perfecting an albeit elevated folk rock stylised status quo. Their popularity soared like a rocket and many folk and all rock fans will love this album. With the exception of the moving *Orfeo*, the sound is crisp, clean and sharp, the 'feel' cold, clinical and produced to a technical 't'.

Rocket Cottage will sell a million.

E.A. Jacques



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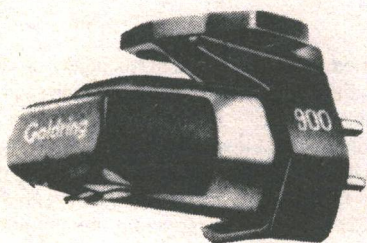
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Jazz

Since this is a jazz column, three principles should be borne in mind to avoid disappointment. (1) Some artists are certainly jazz people but have absolutely nothing else in common. (Archie Shepp and Jack Teagarden are both jazzmen.) (2) If it's saxophones, it must be jazz. (3) Jazz is dead.

European jazz, for example, tends to be pointedly communal — most major ventures being joint ones — while American jazz is still the art of the individual soloist, even in big band music. The jazzmen making successful records, Freddie Hubbard or Milt Jackson with their peaches and cream CTI orchestras, have less of the instrumental eccentricity and spontaneity jazz started with than the Chieftains, say, of The Waiters. And they aren't jazz because they're something else, Folk and Reggae respectively. Anyway, to the records, jazz or not.

Oscar's Choice (MPS/BASF BAP 5088) is compiled from recordings made by Oscar Peterson with a number of small groups he's recorded with before, mainly trios plus Milt Jackson in one case and Herb Ellis in two. Since there's no suggestion that it's a 'Best Of', it's presumably a set of outtakes. The LP is enjoyable and, given that you've heard him before, unremarkable. Peterson is, if not up to the minute, timeless.

George Shearing on **Continental Experience** (MPS/BASF BAP5081) sounds like another age. He has with him Herbert Thusek on vibraphone and Sigi Schwab's guitar. The rhythms are Mexican as well as conventional. He smothers some old songs in 'Impressionistic' piano chording and then prods them alive again with some of that 'South-of-the-border feeling'.

David Sanborn is sole representative this month of Principle (2). He's frequently heard as an alto player on other people's recordings and on

Sanborn (Warner Bros BS 2957 Import) he plays alto soprano



and flute with electric guitar, keyboards, bass and drums backing him. They sound like session people, very capable but leaving all the hot stuff to the front man; also fashionably funky. Sanborn has a thin soaring sound. He played the altosax on Paul Simon's **Some Folks Lives Roll Easy**. Simon himself in fact co-wrote one song here. It's a pleasant album which would have been improved by being less of a solo effort and more like group music.

Michel Legrand and Friends (RCA RS 1061) exemplify a group. The 'friends' are Ron Carter, Grady Tate, Joe Beck, Randy Brecker and the marvellous alto player Phil Woods. Legrand plays piano here and, unfortunately, sings. He's been responsible for some gruesome film music in his time, but his heart must be in the right place. The music here was recorded live and unrehearsed. It's messy and exciting. Woods, Brecker and Beck play dee doo dee doo dee dum dum and other dumb riffs behind each other's solos. One of the things playing jazz is all about, and still good to listen to as well.

Jack Lancaster and Robin Lumley were responsible for the rock **Peter and the Wolf** last year, although that album's



success was due less to their unimaginatively boogied Prokofiev than to the impersonations by the guest stars of the characters in the story. Marscape (RSO 2394 170 Super) has no guest star and is more impressive. It's programme music for a journey to Mars and what you find there. There are geo-memories of lava flowing from dead volcanoes and Martian wind piping through rock holes and "human" relief from a funkily envisaged hopper moving across the surface. It's clever and quite successful; certainly it's an ambitious project. I think they fall short of the mystery they aim for. Mars sounds romantic and freaky in turn, but never very alien.

As if to illustrate the remark about European communalism and American ego-tripping there are two new big band records. Buddy Rich's Big Band Machine on **Speak No Evil** (RCA RS 1073) is what you'd imagine, brash and soulless, a well-oiled backing for grandstanding solos from various hornmen and Rich himself. Rich, like Maynard Ferguson, is moving with the times and the orchestration is fashionably funky. The NYJO (Bill Ashton's National Youth Jazz Orchestra) is more traditionally shaped and is very much a communal effort. **Return**

Trip (RCA DPS 2072) is a double album, which must be commercially ambitious, but justified on the whole by the range of the music. Particularly worth hearing is Neil Ardley's specially commissioned **Independence Day Celebration**, a tribute to Louis Armstrong with bits of his Hot Five solos worked in and his famous **Potato Head Blues** solo transcribed for orchestra. Throughout, the band sounds a lot more professional than when I heard them in 1975.

English avant garde rock since Soft Machine tends to have saxophones and therefore should be filed under Principle (2). European avant garde rock has practically nothing to do with jazz, tending to draw its extraneous influence from Stockhausen and others in whatever category he falls into (Male Vocal perhaps). Here, however, are three such albums, all on Decca. **Time Robber** by Omega (SKL-R 5243) is the least pretentious and the most enjoyable. It has a massive electronic sound, booming bass and a grinding Roxy-like rhythm. Omega record in Germany but they appear to have Polish names. **LA Dusseldorf** (SKL-R 5252) and **Pollen** by Pulsar (SKL-R 5228) are less straightforward and also more forgettable, although Pollen has some dummy French singing ("Des necrophages rampants glissent dans la penombre des cryptes" and so on.)

Lastly, two lady singers. Nancy Wilson moves in and out of the fringe of jazz. **This Mother's Daughter** (Capitol ST-11518; Import) has session/jazz backing and some articulate songs which she sings with vigour and intelligence, if not much humour. **Cleo Laine At The Wavendon Festival** (Black Lion BLP 12150) is a live recording of the different things she does, backed by John Dankworth and a rhythm section. There are Dankworth's settings of poems, standards and *Eleanor Rigby*. The singing is warm, humorous and in complete control. If you like singing, or even jazz, you should have a Cleo Laine record, and why not this one?

Robin Bynoe

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MAIL ORDER SERVICE

RECORDS TO BUY

Classical



Philips 6833 141. 99p

The Queen of Instruments

Works by Bach, Mozart, Sweelinck
Chorazempal/Lenotka/Leonhardt/Plaszetki
Queen? We've heard of women's lib — but this is ridiculous! With all that rampant pipework? In fact, four organs are involved — three sampled from other Philips discs and one a new issue. The former are at Obermarchtal, Felsőor (Hungary) and Nassau, and the latter is at the Waalse Kerk (Amsterdam) on which is played *another* Tocatta & Fugue in d — admittedly a fine incisive account by Leonhardt. The other players, too, leave nothing to be desired in terms of performance, and the instruments are euphonious and of considerable historical interest. The disc quality is eminently good, with a moderately close balance for the smaller organs, and giving clear and open sound. Splendid value. **TA**



RCA GL2:011

Sibelius

Symphony 2 in D

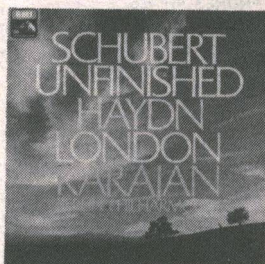
Royal Philharmonic

Orchestra/Barbirolli

A great, but not flawless recording. Sir John had returned to EMI (but had not started his Halle Sibelius series) by 1963, when this recording for *Readers Digest* was undertaken, at Walthamstow Town Hall. Technically it is first-class, with a very wide frequency

range and dynamic scale. Although one string attack near the beginning of side 1 is heralded by pre-echo, the imported Italian pressing was otherwise impeccable. Strings are quite close, yet somehow Charles Gerhardt's microphone layout distances Barbirolli's vocal exhortations: unlike a typical EMI production. I suspect that the strings are faded up at the end of the work, and if so I heartily approve; the impact is thrilling!

The first movement takes time to flow; one or two entries suggest the RPO was unfamiliar with Sir John's conducting. The second is unconciliatory. The first announcement of the great tune is magical, and so are the string entries towards the end of side 2, as mentioned. The performance is characteristic of this conductor at the height of his interpretative powers — the work ends, leaving you thinking that no-one besides Beecham understood the symphony so profoundly — and has the vivid impact of his best live concerts. Certainly the pick of this first batch of 'Gold Label' releases (£1.99). **CB**



HMV ASD3203 (SO)

Schubert/Haydn

Symphony 8 'Unfinished'; Symphony 104 'London'

Berlin Philharmonic/Karajan
Two examples of Karajan's ability to control his orchestra and to tailor symphonic scores with precision. The Schubert differs in some details from his 1965 DG version, where the woodwind blends were more pleasant (at the beginning of the score). Karajan's speeds are now slower, very deliberate at points of natural excitement where before he was prepared to accelerate. In the second movement the playing is more breath-taking.

The Haydn is treated, seemingly, more as a vehicle for virtuosity than anything else. In a resonant setting, the fast playing in the finale contains whole areas which the ear must merely take on trust, and the approach to dynamic extremes and timing is sleek. Agreed: the Berlin Philharmonic is marvellous, but as Haydn interpretation this is not a helpful version. The sound is basically unexceptionable, middle of the road EMI standard. The older *Unfinished* had the more open, natural acoustic. No doubt it will reappear on 'Privilege' — let's hope with a different coupling. **CB**



HMV SLS5065

Haydn 'Paris' Symphonies (82-87)

ECO/Barenboim

Those familiar with Furtwängler's Haydn symphony recordings, particularly the *Surprise*, will find something comparable here. By no means exaggeratedly drawn out, these are nevertheless warmly expressive readings, with driving allegros, and the drama of the development sections given a Beethoven-like scale. In spite of occasional slips in ensemble playing at speed, the execution is notably elegant in pointing of detail: woodwind 'peckings' in *The Hen*, for instance. The opening movement there is enjoyably stylish and affectionate in treatment.

One less successful movement is the minuet from No. 87, where Bernstein provides a more convincing solution, with heavier accentuations and a slower tempo — the music can stand this coarser underlining. Suvi Grubb's production does not avoid a thickness of tone: the recordings reproduce unsympathetically on Quad ESLs, although quiet pressings permit satisfying

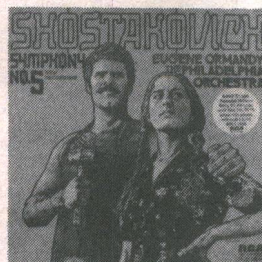
listening on electrostatic 'phones. The booklet, with eminently readable notes, is marred by the pictures of Barenboim selected surely from out-of-date files. **CB**



CBS 78304 (3 LP) £5.49

Dvorak Symphonies 7-9

Cleveland Orchestra/Szell
Szell was a master interpreter of Czech music. His *New World* is new to UK; the D-minor first appeared on EMI. He made three LP recordings of the G major; one just before he died (EMI, deleted), one early disc with the Concertgebouw. This middle version was recently part of a two-disc CBS 'concert' where the quality was, frankly, a little sweeter and more open than here. The coda of this work makes a good sampler; this is Szell in his fiercely authoritative manner, and some will find him curt and cold. Szell's own records of earlier vintages showed a more genial musician (e.g. the Czech PO 78s of *New World*; the G major on *Eclipse*). This is a collector's set, the Cleveland recordings hard and tight in quality. **CB**



RCA ARL1 1149 £1.49

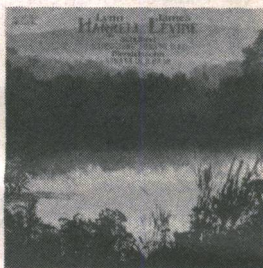
Shostakovich Symphony 5

Philadelphia

Orchestra/Ormandy

The appalling vulgarity of the cover speaks for itself. Ormandy recorded the symphony for CBS: a good straightforward account now

on their cheaper label. But he has modified his interpretation; it is now more personal and considered, more subtle. I find the recording impressively spacious in soft-scored passages — this is the closest match yet to the Philadelphia Shostakovich 15, often used as a demonstration disc. There is the same spaciousness. The treble is subdued, and the spatial information rather extreme ('almost mono, one channel only' a friend commented). At climaxes the scale tends to collapse, with trumpets pinpointed in a constricted way. But at the initial offer price, worth having. **CB**



RCA ARL1 1568

Mendelssohn/ Cello sonata 2 in D; 'Arpeggione' Sonata, D.821

Lynn Harrell/James Levine
Another lovely recording from Lynn Harrell, with Levine at the piano (they started playing together at Cleveland in 1964) — occasionally stealing the limelight, with his big extrovert style, then restoring balance with a sensitivity of touch to match the cellist's expressive manner. On Vox STGBY605 there is a useful gathering of Mendelssohn's four pieces for these instruments, where Balsam is good, but Schuster is no competitor to Harrell — the Vox recording is too soot-and-whitewash, in any case. The RCA recording is very good, although I would have preferred greater lateral separation between the players. The cello is placed in front of the piano, with the image slightly more diffused in the Mendelssohn sonata. The disc contains a beautifully stylish reading of the Schubert, with a faultless and appealing account of the slow movement.

I am glad to see RCA importing from Italy, since the pressings made for them in UK have not been wholly reliable in my experience. **CB**

RECORDS TO BUY

Classical



HMV ASD3259 (SQ)
Rachmaninov
Symphonic Dances;
Isle of the Dead

LSO/Previn

The music of Rachmaninov evidently touches a deep response in Previn, and this is an outstanding disc. (It is worth contrasting the 'feel' of these performances with Previn's Berlioz overtures, recorded with equal brilliance on ASD3212.) The symphonic poem is rarely heard, although the composer's historic Philadelphia recording has been transferred to LP by RCA. It was inspired by a monochrome reproduction of the Böcklin painting used for the EMI sleeve here. Rachmaninov in his arguably overlong score quotes the *Dies Irae* motif again, and the eerily atmospheric dip of the oars over the *Lethe* inevitably put one in mind of Sibelius's gliding *Swan of Tuonela*. A powerful work. EMI have boldly contrasted the recording quality, rich and subdued, with a brilliantly lit, airy quality for the *Symphonic Dances*. Previn does these imaginatively, buoyantly. For once the composer's inclusion of the saxophone does not create an embarrassment, when Previn coaxes his player to refine the tone to match the level of other wind instruments. **CB**



Decca D5D 2
Puccini
'La Bohème'

Tebaldi/Bergonzi etc/Serafin
Reissued with a fat libretto

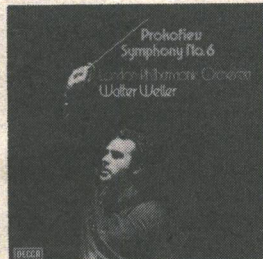
and illustrated synopsis, the 1959 Decca *Bohème* with the Santa Cecilia Orchestra makes a fine bargain at £4.95. The vivid recording quality, with imaginative stereo staging of the action, and realistically incorporated effects, only hints at its age when strings are heard in climaxes to take on a slight huskiness. The singing is excellent — new generation listeners will, I suspect, find Renata Tebaldi a figure prone to stand aloof — and I particularly liked the voice of Gianna D'Angelo (Musetta). The conducting is careful, where Beecham's was inspired; thus I would place this set third to Karajan's de luxe Decca set, alongside the de los Angeles/Beecham HMV. Incidentally, the labels are cross-referenced to the libretto, and not vice-versa. **CB**



Philips 6500 831
Mahler
Song of the Earth

Janet Baker/James
King/Concertgebouw

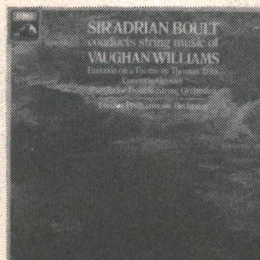
Orchestra/Haitink
A recording with Janet Baker has been eagerly awaited — there are no disappointments here; not only is this one of her finest records, but the performance as a whole is deeply satisfying. In part this is because the Concertgebouw (orchestra and hall) sound is singularly suited to Mahler. Haitink's account is as detailed and sympathetic as his predecessor's, Van Beinum's, and the playing of the flautist deserves particular mention. James King I think gives a better account of his part than under Bernstein (Decca). There the fidelity to orchestral sound — the Vienna Philharmonic — is even greater than on Philips, where the voices are too forward. A slight reservation for those who want concert-hall balances, and oddly the tenor is more prominent than the mezzo. **CB**



Decca SXL6777
Prokofiev
Symphony 6

LPO/Weller

With Rozhdestvensky's tucked away in a box (HMV), and reservations to be made concerning the Turnabout recording by Martinon, we badly needed a modern version of this rich, if predominantly sombre work. Decca's well-rounded Kingsway Hall production, with its skilful balances, and weighty — almost plump — textures, is technically very adequate. Walter Weller takes an expansive view of the symphony, the LPO playing very attentively for him. Those lucky enough to have a copy of Mravinsky's old M.K. recording will find Weller's approach too comfortable, his view too partial. But this is not an unattractive account. **CB**



HMV ASD3286 (SQ)
Vaughan Williams
Tallis Fantasia;
Concerto Grosso;
Partita

LPO/Boult

New Boult recordings of English string music, a nice complement to his EMI Vaughan Williams symphony cycle. The *Concerto grosso*, not otherwise available, was composed for three groups of players with varying skills combined: a piece for the Rural Music Schools Association. The movements are wholly characteristic, the composer's spirituality shining through even in a simple context. The sleeve writer makes the interesting and

valid point that the *Tallis Fantasia* contains its own 'cathedral sound' — those especially interested in this work should note that Silvestri's outstanding account is once more available, with Elgar's *Alassio* etc (EMI ESD7013). The present performances and recordings are predictably good. **CB**



HMV HQS1364
Piano Music for Children
Cristiana Ortiz

EMI's attractive artist Cristiana Ortiz provides a recital of small pieces by Debussy (*Children's Corner*), Prokofiev, Mompou, Ibert, and Khachaturian. How much more sensible and useful than duplicating the standard Brahms or Chopin works, and how satisfying are both playing and recording. My only technical reservation concerns a slight background hum which I hear during the last band, the *Gayaneh* adagio: this appears to be related to the cut, rather than the master-tapes. The piano tone is full and nicely balanced. **CB**

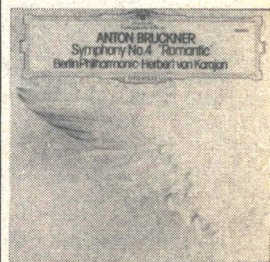


CBS 76529
Elgar
Enigma Variations;
Cello Concerto*

Jacqueline du
Pre/LPO/Philadelphia
Orchestra/Barenboim
Daniel Barenboim's *Enigma* is so good (his best Elgar interpretation apart from the Violin Concerto, and perhaps *Falstaff*) that it is a pity to view it merely as the 'B' side

to this unique and unexpected Philadelphia recording of the great Cello Concerto. If it appears thus, that is only because Jacqueline du Pre's playing offers — the tragedy of later events apart — such a profound, searing experience. The upholstered Philadelphia sound is slightly odd to our ears, although Barenboim secures the finest of accompaniments. Even so this is very much a soloist's recording (the actual balance is not too exaggerated). The tapes come from live performance, and there is some audience coughing where you least want that, but the security of the solo playing is amazing. The HMV studio version with Barbirolli was good; but here Jacqueline du Pre is even more complete in self-expression, more sure.

The LPO Enigma is cut on one side, thus forfeiting some of the sonic impact of more generously spread alternatives. It is, surely, one of the most pleasing of the many recent recordings. **CB**



DG 2530 674
Bruckner
Symphony 4
'Romantic'

Berlin Philharmonic/Karajan
Later concert performances suggested that Karajan's HMV recording (SLS811 — with Symphony 7) realised less than the full potential of the combination of work, orchestra, and conductor. Certainly the finale is far more thrilling, and Karajan has introduced an effective cymbal clash in one of the climaxes, also to be found in Jochum's version. In spite of long sides the transfer has a wide dynamic range — I would have liked even more volume at the very end of the work, but perhaps that would not have been practicable. The English pressing confirmed that we don't have to import from Europe! Strongly recommended. **CB**

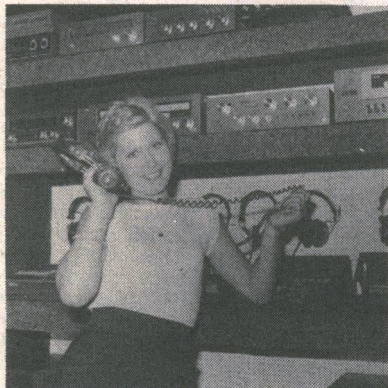
Many of you will have read the various comparative reviews printed in this and other Hi-Fi magazines. Perhaps you too have found amusing in them the increasing use of the word 'subjective', because it wasn't very long ago when the results of objective test procedures formed the basis of equipment recommendations. You may also remember that it was one of our fellow dealers who really put the cat amongst the pigeons by stating in his advert that a

certain very well measured amplifier sounded 'foul'! What a controversy that caused!! The outcome is plain to see — the word 'subjective', now being used in almost every equipment review, proves that the human ear *must* be the final judge in assessing the performance of any audio component. Unfortunately old habits die hard and it is still too easy to be impressed by the written word, words

which really tell us so little about the actual sound. At Hi-Fi Consultants we have created a stylish listening environment where you can compare everything from cartridges to loudspeakers. We carry good stocks and keep our prices comparable with the lowest advertised.

So come and listen — you can't blame your ears if you don't!

What have you heard with your eyes recently?



Probably the most unnecessarily controversial topic of the moment is turntable drive mechanisms — belt or direct. We have them all in stock: Linn Sondek, Technics, Pioneer, Sansui and Harmon Kardon Rabco are just a few currently connected to our comparator. They ALL have their merits!

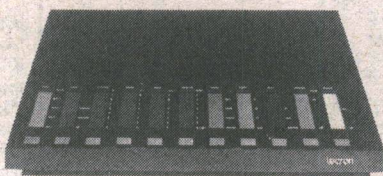


The new LUX PD131 direct drive makes no sound at all — it just screams Q-U-A-L-I-T-Y! It is one of a very few select items to earn the highest regard of both audiophiles and engineers. Expensive? Yes but if you're coming a long way for it we can certainly make it worth your while.



We are currently considering a number of moving coil cartridges and Yamaha of course have an appropriate input on their CA1000 amplifier to accept the very low output of these units without transformers. We must mention Sugden for very pleasant sound quality as well as Technics and Pioneer for superb value for money — especially at our prices!

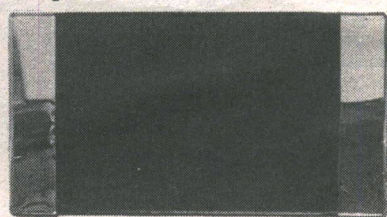
lecson



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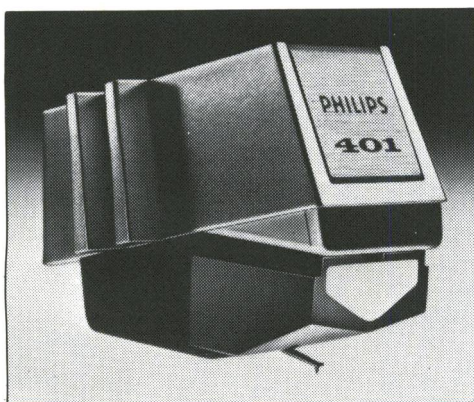
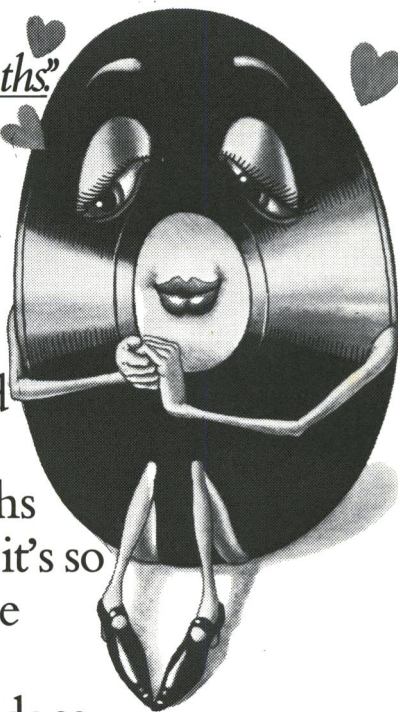
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Believe it or not, this is our

Until now, the most inexpensive Aiwa Dolby cassette deck was the highly rated 1300 (the one selected by Angus McKenzie in Hi Fi Choice as a Best Buy).

The new Aiwa 1250 that follows it, at £144.45, actually costs marginally less.

Yet it lacks nothing.

It has our oil damped elevation system that protects your cassettes against damage. (A feature hitherto reserved for our more expensive decks).

And a peak level indicator light at +5dB



cheap cassette deck.

to save you from over saturating your own recordings.

It also has Aiwa's interlinked Dolby/MPX filter switch, again normally reserved for our more expensive decks.

Plus and by no means least, a technical

specification that makes it the envy of lesser decks.

And, as you can see for yourself, its advanced ergonomic styling belongs to an altogether different price class of cassette decks.

AIWA®



A circular truth.

The 3001 turntable from the new Leak 3000 Range: speakers, receivers, turntable.

It is clear that during the last decade there have been dramatic advances in electronic circuitry design.

However, it is only recently that any of these developments have been matched by an equal sophistication in turntable specification.

The new Leak 3001 Turntable implements advanced electronic thinking in a formerly largely mechanical area.

The motor is driven by direct current, so it cannot hum.

Coupled to this motor, we have incorporated a Frequency Generator.

This generates the frequency of the motor, which it feeds back into a sophisticated electronic system.

Should there be any deviation whatever from the intended frequency, the electronic system will correct the motor speed instantaneously.

This means not only that any unintended speed variation is eliminated, but that the FG system enables all speed setting to be electronically determined by easily accessible front panel controls.

Naturally, the purely mechanical components have been equally carefully considered.

The tone arm is of a low-effective-mass design which will track with cartridges of high quality, its lightness contributing to a considerable reduction in record wear.

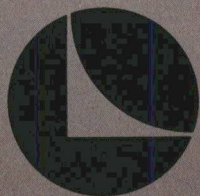
The wiring is low capacitance, should a four channel facility be required.

All specifications, from the oil-damped arm cue to the free-stop cover hinges are in keeping with the Leak tradition of comprehensive detailing coupled with controlled quality.

In total, the appearance reflects the precision design technology.

You will hear nothing from Leak 3001 turntables but music as it was recorded.

They achieve a new truth in sound reproduction.



LEAK

We promise to be true.

There's



And that, quite simply, was the sheer value for money it represents.

Of course initially, we set out to produce the ultimate in tape decks. Money no object.

And there's no doubt that we've made some considerable advances with the RS630.

As you can see it's a front loader and completely compatible with our other Hi-fi components.

Using the Dolby noise reduction system, tape hiss is reduced to an almost inaudible

level and wow and flutter are virtually eliminated by the remarkable stability of the electronically controlled motor.

You can get the best out of your cassette tapes through the use of the separate bias and equalisation switches.

And at the same time appreciate the smooth frequency response, the excellent dynamic range and the fine signal to noise ratio.

Take a glance at those easy-to-read peak check meters.

something about our new RS630 Cassette Deck that even surprised us.



They'll respond to the shortest duration signal peaks and you'll find yourself able to make really genuine high quality recordings.

Another bug we've sorted out is the inevitable wear and tear usually experienced, on tape heads.

Well, you can forget about that problem from now on.

In the RS630 we've fitted our HPF long-life head. It's guaranteed for 10 years.

Finally, there's the convenience.

The controls you need are right there on the front panel. All easily accessible.

All in all the RS630 is a classic in cassette tape decks.

The current retail price a mere £137.95.

Like us, you'll no doubt be wondering if there can ever be a better cassette deck at the price.



Technics

107/109 WHITBY ROAD SLOUGH, SL1 3DR BERKS.
TELEPHONE: SLOUGH 27516

A SOMEWHAT POINTLESS PHOTOGRAPH.



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Or even its specification.
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NEWS

Don't moan about quad - just give up

A continuing audio moan is that very few quadraphonic records are available in British shops. The HMV store in Oxford Street has a good selection, but largely because most have to be imported from all over the world, local shops seldom stock any. It was this situation that led Nick Austin and Martin Mills, co-owners of the Beggars' Banquet small chain of record shops to conclude that around 90 per cent of the people who have bought quadraphonic hardware are dissatisfied with their local shops, inability to sell them any quadraphonic records. So they opened up the basement at the Beggars' Banquet as a quadraphonic-only record centre. The aim was to have in the racks everything that is available in all the systems currently being commercially used (SQ, QS and CD-4). But this proved easier said than done. Nobody in the record trade seems to know exactly what is available, where and in what system, and half the material advance advertised and listed in record company catalogues just isn't available. Some material imported as quadraphonic isn't any such thing and some is quadraphonic but not identified as such on the record. For instance most of the ABC Command records imported from the USA are in fact QS encoded but do not carry the QS logo. Like me they have grown old and tired trying to squeeze up-to-date information on SQ out of CBS UK. They find that much listed material is consistently out-of-stock. Although JVC UK is trying hard to spread the CD-4 gospel by importing Japanese pressings direct, stocks of popular titles are often low and the selection imported is by no means com-

prehensive, bearing in mind the wide range of CD-4 material now available in Japan.

To cater for country dwellers unable to make a browsing pilgrimage up to Hogarth Road, BB run a mail order service — with a catalogue and price list. A charge is made but you are buying not so much 30 or 40 pages of titles, but all the work involved in collating what is potentially available world-wide. Mail orders have already come in from as near as the provinces and as far as Libya and Canada. Particularly interesting is the way an inordinately high volume of mail orders originates from some local areas of England, for instance Bournemouth and Bolton. Presumably these towns have local dealers with an active interest in selling quadraphonic systems, and the local record shops there have, not surprisingly, grown sick and tired of ordering and re-ordering quadraphonic issues that their customers insist are available but which the record company in question has never heard of.

Also interesting is the shop's first-hand proof of just how confused the public really is over quadraphonics. It is already quite a common occurrence for a customer buying records to have no idea whatsoever of what quad system he owns: he knows it's quad but hasn't a clue whether it's matrix SQ, matrix QS, discrete CD-4 or UD-4 (which is a mixture of both). It seems quite likely therefore that there are currently owners of expensive quadraphonic systems who are so confused by what they have been sold that they are using them with the wrong records and getting either nothing or something completely anomalous out of the rear channels! **Adrian Hope**

Now even a cassette deck needs two rack-size cases



Another new product making its debut at Harrogate was the Technics professional-standard Dolby cassette deck RS900. It's housed in two units, one for the tape transport and the other for the recording and playback amplifiers, thus eliminating the possibility of interference from any one set of circuits. Major features include a closed-loop tape drive using a direct drive motor, all-solenoid operation, pitch control, an elapsed tape time meter plus a tape counter, memory replay, separate mic/aux and line mixing control and the facility to use the

deck with a separate timer for unattended recording. Three bias and equalisation switch positions cater for normal tape, chrome tape and any other tape the user chooses. Wow and flutter specs clock in at 0.4% (WRMS), the frequency response for CrO2 tape is 30 to 20,000Hz \pm 3dB and 30 to 18,000Hz \pm 3dB for normal and the signal-to-noise ratio is 65dB (above 5kHz) with Dolby in and 55dB with Dolby out.

The new RS9900 will be available this spring through authorised dealers only.

Twin standard - but ferric

Maxell, manufacturers of the UD and UDXL cassette series, are introducing the improved UDXL-I and the UDXL-II. The UDXL-I offers a wider frequency range, lower noise and distortion and about 1dB better maximum output level and sensitivity than the UDXL, which it will eventually replace. It's designed for use in the 'normal' or 'LH' position (120 μ s.

EQ, normal bias). Designed for use in the 'chrome' position, the UDXL-II (70 μ s. EQ., high bias features a maximum output level and sensitivity 2dB greater than chrome throughout the frequency range as well as excellent signal-to-noise ratio. The housing has been improved and azimuth losses have been reduced. The price will be only marginally higher.



New Eagle takes to the air

Eagle have a new AM/FM stereo tuner out now, the low-cost AA102 designed to match virtually any amplifier. Based on Eagle's TST152, the AA102 includes wide range, switchable AFC, stereo indicator beacon, illuminated tuning scale and needle, noise filter

and variable output to avoid mismatch problems. Retailing at £52 plus VAT, this no-nonsense tuner has a frequency response of 25Hz - 14,000Hz \pm 2dB, a better than 7 μ V sensitivity for 30dB quieting, less than 0.8% harmonic distortion and a signal-to-noise ratio of 54dB.

Superfi brings to Nottingham a brand new Hi-Fi store that offers you the finest in Hi-Fi equipment, service and product knowledge anywhere in the Midlands.

It offers four super star points:

- * Prices to compete with the lowest in London.
- * Two year Parts and Labour Guarantee.
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- * All equipment pre-delivery checked.

And, of course, it accepts Access and Barclaycards, arranges Hire Purchase without fuss, is happy to consider part exchange, and will install equipment in your home.

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20/20+	
C60	£0.75
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EMI

X1000	
C60	£0.60
C90	£0.79

maxell.

Low Noise	
C60	£0.56
C90	£0.72
C120	£0.91

Ultra Dynamic	
C60	£1.01
C90	£1.15
C120	£1.56

Ultra Dynamic XL	
C60	£1.15
C90	£1.44

PHILIPS

Low Noise	
C60	£0.45
C90	£0.62
C120	£0.83

Super	
C60	£0.58
C90	£0.73
C120	£0.98

SONY.

Low Noise	
C60	£0.48
C90	£0.66
C120	£0.91

High Frequency	
C60HF	£0.67
C90HF	£0.89
C120HF	£1.02

Chromium Dioxide	
C60CR	£0.99
C90CR	£1.28

Ferri Chrome	
C60FECR	£1.09
C90FECR	Availability?

MEMOREX

MRX2	
C60	£0.69
C90	£0.83
C120	£1.29



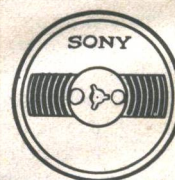
Dynamic	
C60	£0.52
C90	£0.75
C120	£0.99

Super Dynamic	
C60	£0.75
C90	£0.89
C120	£1.31

Audua	
C60	£0.93
C90	£1.31

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C60	£1.02
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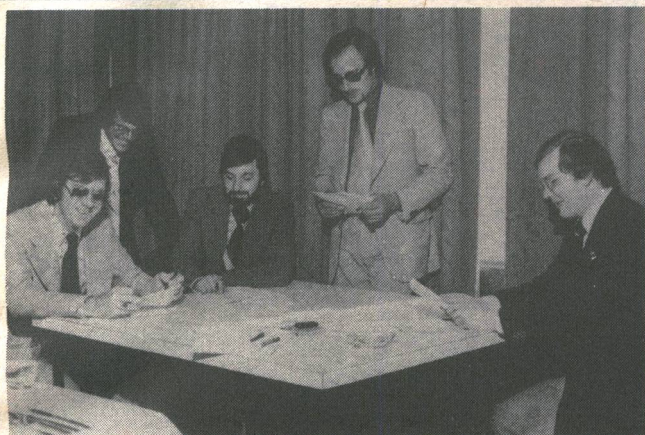
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Proof of independent judging – editor and John Peel assist!

14 years - and off to the Med.

Paul Vidler, a fourteen-year-old schoolboy from Stalybridge, Cheshire, has been named the winner of the national music quiz competition run by Memorex (UK) Ltd. and EPS, the blank cassette and tape wholesalers of North London. Also laughing is F. Mayer, the owner of 'Disc Stop' in Manchester who sold him the tape and entry form — and gets a free holiday into the bargain. Paul will enjoy a week's holiday at the Mediterranean resort of his choice.

Turnabout

An ingenious little device from MS Precision Products, London SE10, may banish forever those niggly problems of correctly aligning stereo or quadraphonic speakers. Rototurn, a toughened silica rotating turntable-type base, supports up to 100 kilos (221lb), allowing objects placed on it to be turned at will. You might position it under a television to change the viewing angle — or under a tub of indoor plants to turn them toward the sun — the possibilities are endless! The Rototurn retails around £4.50 and MS claims it doesn't require lubrication or maintenance.

New lift with Monitor turntable

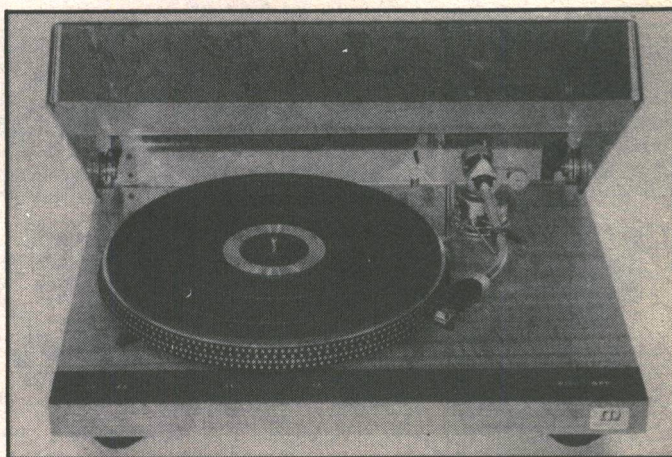
The newest addition to the Monitor Audio range is the ET1000 direct drive turntable. Completely electronic with touch control it stands approximately 5 inches high overall and comes with a multi-position cover (it stays put in any position from 30° upwards), an SME arm and a new lift-off device, the Monitor AL100. This device, which is attached to the turntable, lifts the arm in 0.3 seconds after the record has finished playing and on the ET1000 it turns the motor off.

The motor is a Matsuhita motor, the same as used in the Technics turntable, but plans are under way to develop a motor in Britain. The rest of the turntable is manufactured here.

A big safety plus is a step-down transformer built into the mains

plug. This ensures that only 15 volts run through the cord. Since there will always be someone who will try to push a screwdriver into the circuitry in a piece of equipment the advantages here are obvious. For the manufacturer there is an advantage too. While not jeopardising anyone's safety he doesn't have to tangle with the new Electrical Equipment Safety Regulations which apply to any electrical equipment intended for domestic use which requires voltage of between 50 and 500 volts.

The AL100 lift-off device can be purchased separately for £4.95 plus VAT as a lift-off only device (it will only turn the motor off when connected to the ET1000). The device is adjustable in height from one inch at its lowest to two inches



which makes it only suitable for a pick-up arm which stands high on the deck. If you have a very low-styled pick-up arm (e.g. less than one inch above the plinth) you should contact your dealer or Monitor Audio Ltd., 347 Cherry

Hinton Road, Cambridge, CB1 4DJ, telephone (0223) 42898 before buying one.

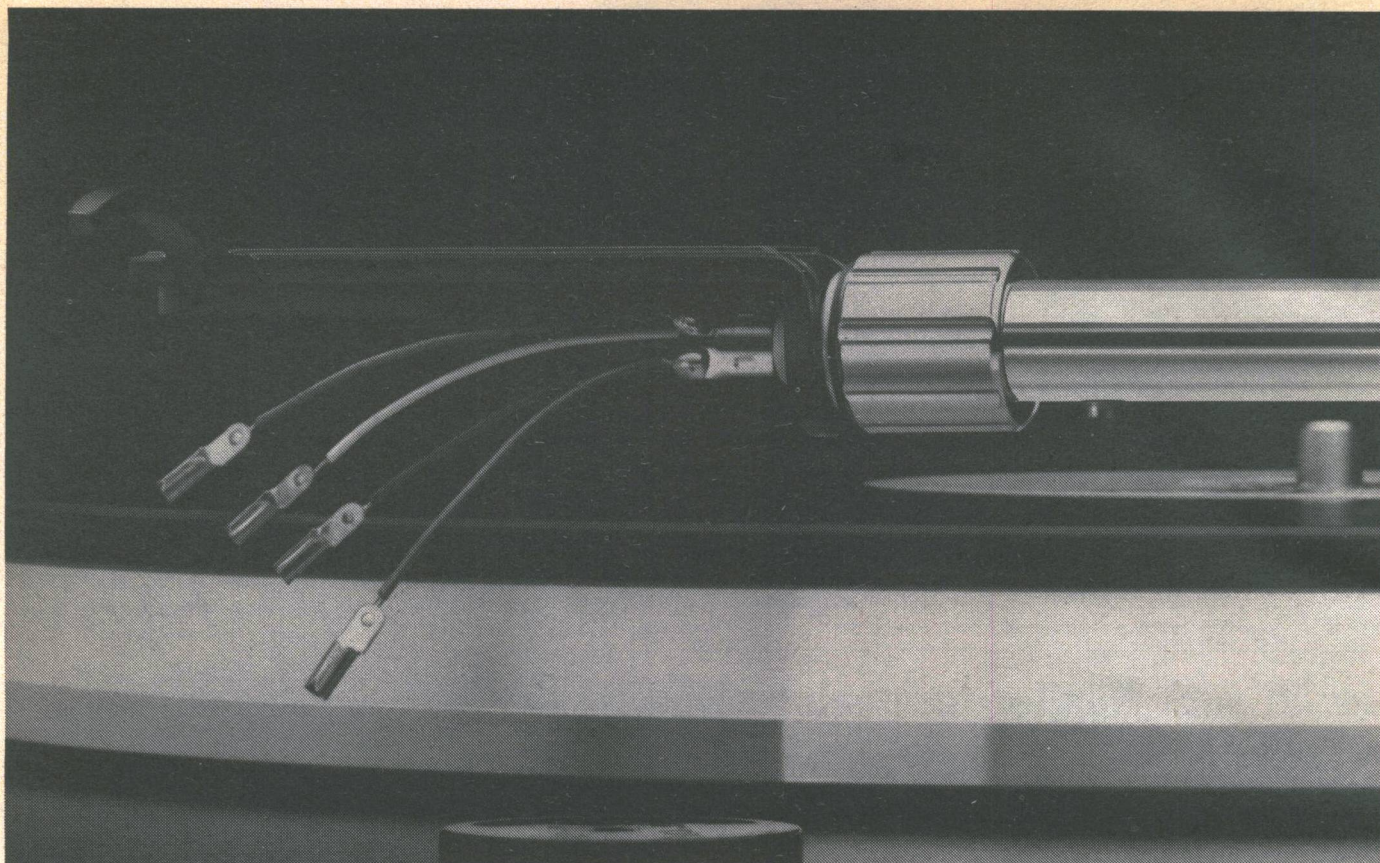
The cost of the ET1000 is £165.00 plus VAT and this includes an SME arm and the lift-off device.

Three-way surprise from Sansui broadens your choice

Sansui introduce three new turntables: the quartz-servo direct drive SR929, the 2-speed automatic direct drive FR5080P and the 2-speed automatic return FR1080P. The SR929 claims to maintain the most precise rotational speed accuracy ever achieved. Retailing at £371.06 excluding VAT, platter speed deviation is less than 0.002%, wow/flutter is less than 0.028%, signal-to-noise ratio is better than 66dB and rumble is better than -74dB (DIN-B). The FR5080P, retailing at £223.40 excluding VAT, is similar to the direct drive system of the SR525, utilising a precision S-shaped tonearm for lateral balance. A silent automotive mechanism decouples from

the arm when in playing mode. Fine adjustment is $\pm 3.5\%$, wow/flutter is less than 0.03%, signal-to-noise is better than 62dB (IEC-B) and rumble is better than -70dB (DIN-B). The turntable features an integrated spring-loaded anti-skating device and comes without a cartridge. Retailing at £99.21, the FR1080 updates and replaces the successful SR212P. It is designed for ease of operation, long-life reliability and a dependable, lasting tonal quality. Wow/flutter is less than 0.08% (WRMS), signal-to-noise is better than 50dB (IEC-B) and rumble is better than -58dB (DIN-B). The tonearm is S-shaped and statically balanced with an anti-skating device and a direct readout stylus force dial.





Is Ortofon the first £15 cartridge to come into your head?

If you are prepared to pay a very great deal of money for a no-compromise high fidelity system, you're probably considering moving coil cartridges.

If, that is you don't own one already.

In either case, an Ortofon has probably entered into your calculations.

What many people don't realise is that Ortofon also make a range of magnetic cartridges with a performance/cost ratio that's hard to ignore.

From the faithful FF15E to the magnificent M15E Super, they all share a unique feature.

The Variable Magnetic Shunt (VMS) principle.

Our engineers were given a daunting brief: to approach as closely as possible the performance of the Ortofon moving coil pickups, without sacrificing the undoubtedly greater practicality of existing magnetic designs.

After a great deal of time and effort, much of it spent in the company of simple formulae such as $R_m = 0.95 \times 10^{-9} \frac{A}{Vs}$, the VMS principle is what they came up with.

The greatest single benefit is the reduction of mass, both in the stylus assembly and in the cartridge as a whole.

The former is possible because, unlike other magnetic cartridges, the magnet itself doesn't have to move. Instead, the stylus deflects a tiny armature, which moves in the field of a lightweight ring magnet.

This is important, since the lower the stylus mass, the more easily it can follow the complex contortions of a record groove without having a nervous breakdown.

The magnet and the minute coil-wound pole pieces are also smaller than most, making the total cartridge weight among the lowest available.

But since you're probably more interested in music than mathematics, what difference does it all make?

The answer is twofold: better contact with the record groove, and lower distortion.

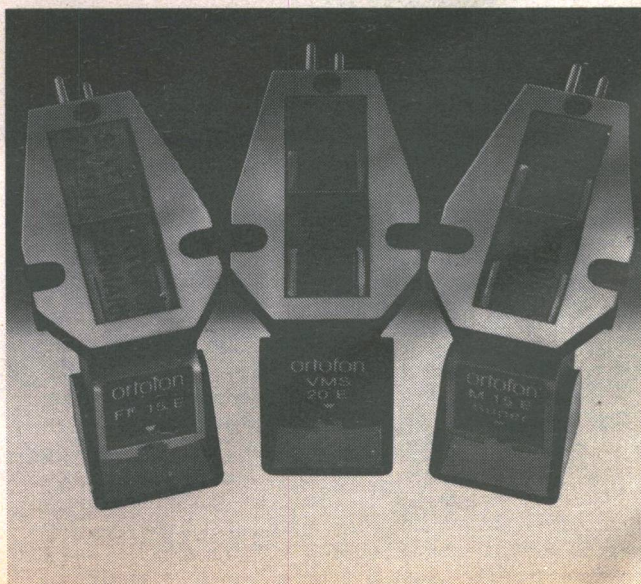
And whether you're after a medium priced cartridge like the FF15E (capable of producing sweet sounds in the most unpretentious of arms), or a state-of-the-art device such as the M15E Super (which, in a suitably refined arm, will track happily at less than a gram), the Ortofon difference is not just a theory.

You can actually hear it.

Can you think of a better reason for choosing Ortofon?

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NEWS

Of Koss there's a phone for you here



Model K/125



Model K/135



Model K/145

A gaggle of geese? A haul of headphones! Three new ones from Koss, making up the 'Slimline' range and on show at the Exhibition. And the new HP80 stereo headphones from Videotone — keenly priced at £10.50 for a lightweight, comfortable construction and specs that include a frequency range of 16 through 22,000Hz, a sensitivity of 110dB, matching

impedance of 4 — 16 ohms and a 3in moving coil speaker.

The Koss 'Slimline' K series offers new lightweight styling and soft vinyl headband and Pneumalite earcushions. New enthusiasts will appreciate the economical K/125 with a F/R of 10 — 16,000Hz and Total Harmonic Distortion (THD) of no greater than 1% at 1kHz, 100dB-SPL. The smartly-

designed K/135 offers a F/R of 10 — 18,000Hz and sensitivity for 100dB — SPL of 0.2V-RMS, sinewave at 1 kHz. The K/145 offers a frequency range response of 20-20,000Hz and a THD of no greater than 0.5% at 1kHz, 100dB-SPL. Each earcup features a 1½in driver and volume balance controls. A pride of headphones indeed!

Logic for Uher deck

Two new ones from Uher: a 'first' in their SG630 Logic home recorder featuring Omega Drive for tape speed stability and a new cassette deck, the C63000.

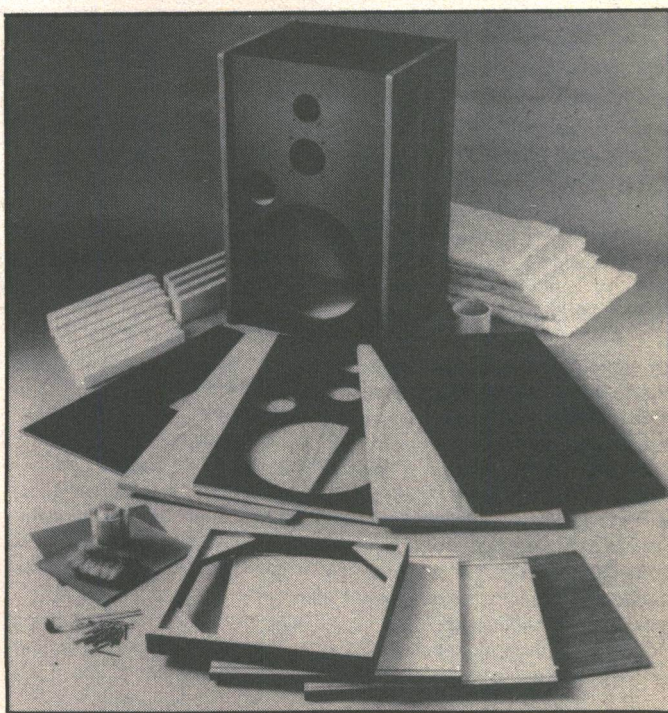
Developed from the Omega looping system used in video equipment, the Omega Drive used in the SG630 supersedes all conventional pinch roller drive systems. A new electronic tape tension control is also featured in this reel-to-reel recorder. A stroboscopic disc for accurate adjustment of tape speed and a built-in 'DIA pilot' for recording signal impulses and slide projection control are included. There's also a built-in signal head for synchronised film dubbing and DIN standards of 45500 are surpassed at all tape speeds. The CG300 incorporates automatic front loading, Dolby 'B' noise reduction and manual selection of bias and equalisation for chromium dioxide tapes. An economical top-quality deck, the CG300 also features an 'Auto shut-off' system.

Pioneer move on

And yet another goody for your auto: ARC (Automatic Reception Control) from Pioneer. It's a miniature electronic brain built into an FM radio to overcome the problems of FM reception in a moving car. ARC continuously monitors signal strength and relates it to the background noise level. If the signal weakens, reception is automatically switched to mono to improve reception. If there is further deterioration, the station is suppressed automatically and you can return to another station or to a cassette at the 'touch of a button'. ARC is available as standard in the KP-8000 and KP-8300 speakers, and Pioneer promises you'll get the same hi-fi FM sound you only got in your home up till now. Nice for all of us driving in from the Cotswolds!

Instant power - just build a JBL kit

Do-it-yourself buffs can now have a go at the new JBL 'Ready to Assemble Enclosures'. These enclosure kits in 3, 5 and 8 cubic foot sizes contain everything you need — including an assembly tool! — to put together and finish acoustically optimum enclosures for custom-designed JBL loudspeaker components. The kit includes panels, cleats, braces and pre-cut baffle boards to eliminate hand-fitting. Cleats are factory-installed and enclosure panels are located on dowel pins for perfect alignment. American black walnut and light birch veneers are offered together with two factory-assembled grilles, one extending beyond the front of the enclosure providing clearance for horn and acoustic lens combinations and the other fitted flush for cone speakers. The matching veneered top surface can easily be replaced with glass or marble for a truly 'custom' design.



Pye fill a gap with QS releases

With the recent release of 11 QS-encoded records Pye now offers a selection of over fifty. The new releases, which also give wider and more detailed stereo on ordinary equipment, include two

brass band recordings; music by Alyn Aynsworth, Norrie Paramor and Acker Bilk; recordings of Stravinsky, Ravel and Franz Liszt and an LP featuring the conducting of Leopold Stokowski. A list of Pye

'Compatible Stereo/Quadrophonic QS 4-channel Stereo' discs is available free from Pye Records, ATV House, 17 Great Cumberland Place, London W1. The QS system is sponsored by Sansui.

THE BOSE CONCEPT

Chris Rogers reports on a recent presentation by Dr Bose

Whenever the topic of sound propagation by loudspeakers is raised in hi-fi circles, a controversial argument is bound to ensue. Secure in this knowledge the hi-fi press migrated as lemmings to a talk by Dr Amar Bose on the theory behind the Bose 901 direct/reflecting loudspeaker.

Before his appearance at the Royal Lancaster Hotel we were introduced to his qualifications by Nick Pearce, who is responsible for the UK operation. After hearing Dr Bose's credentials, which included his position as Professor of Electrical Engineering at Massachusetts Institute of Technology, a listing in Who's Who, membership in many professional societies and the authorship of dozens of technical text books, I had the distinct feeling I might end up listening to an academic lecture.

It turned out to be just the opposite. Dr Bose had a very refreshing practical approach to the subject which is based on what he has heard.

Prompted by audience questions, Dr Bose first discussed the workings of the ear and psychoacoustics.

Some of the points covered were about phase and transient attack, and Dr Bose exploded some of the myths surrounding these topics. For instance, consider a sine wave to which the third harmonic has been added (Fig. 1). The resultant waveform will have a very fast rise time. If, however, the phase of the third harmonic is shifted 180 degrees as in Fig. 2, the resultant waveform has a far slower rise time, but it is audibly the same. This, he claims, goes to prove that phase of this nature has absolutely no effect on the sound. However, a small change in frequency is very audible. This gives the situation shown in Fig. 3, where it can be seen that both frequency and phase give a transient; hence it would seem that transient attack is also of little importance.

He then went on to discuss the more practical problems of reproducing music in the home.

When Dr Bose bought his first hi-fi system, it was purchased after spending a lot of time studying specs and catalogues. When he got it home and connected up, there appeared to be something wrong with it. The store assured

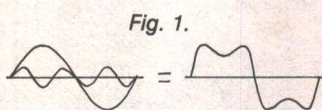


Fig. 1.

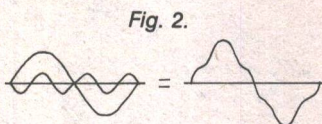


Fig. 2.

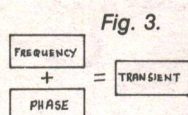


Fig. 3.

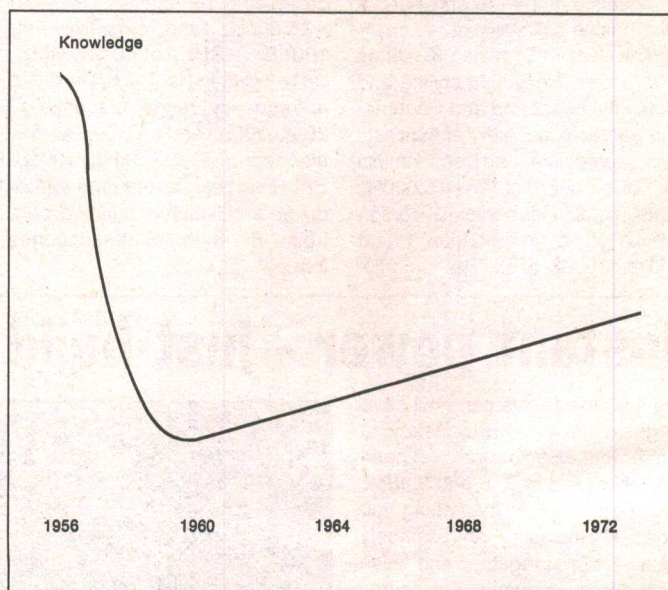


Fig. 4. Knowledge about speaker design – by 1959 it had reached a minimum. 'We recognised many fundamental problems, and we understood what was wrong with existing methods ...'

him it was working correctly. He then listened to all the dealer had to offer and went home with another system. This second system was better, but it too produced a very harsh and shrill sound.

At that point, in 1956, Dr Bose thought he ought to try to do something about this problem. By 1959 he was working full-time on a solution to the 'shrill sound' question.

After three years' work studying how loudspeakers radiate sound and related problems, Dr Bose concluded he knew less about the subject than when he started. He demonstrated this graphically in Fig. 4, which also illustrates how he considers knowledge about the field in general has progressed.

Dr Bose next embarked upon a long programme to try to establish

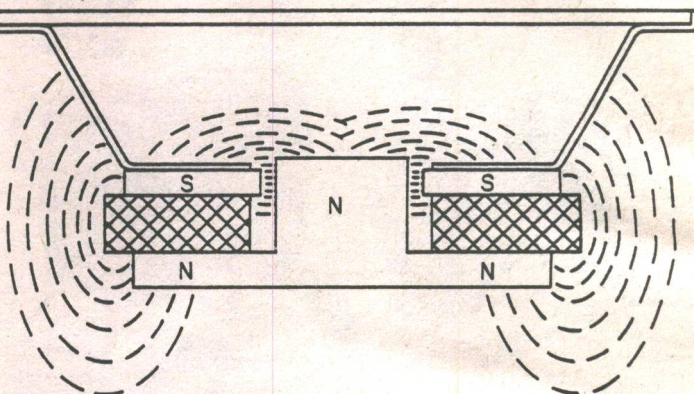


Fig. 5. Magnet structure with steel basket.

peakers the same thing was noticed: shrillness in the binaural mode, a pleasant sound in mono.

After this discovery many more experiments were made. In the same concert hall recordings were reproduced using loudspeakers on stage to represent the orchestra. The shrill sound was present. The speakers then had 8 foot by 4 foot boards placed a few feet in front of them, and the shrillness was not present from the normal listening position in the fifth row. This, it was thought, could be due to treble being attenuated by the boards, but measurements showed that the frequency response was the same with or without the boards. There was, however, a disadvantage to the boards: all sense of directionality was gone. This effect and other work demonstrated that 89 per cent of what one hears in a concert hall is reflected sound. Only eleven per cent comes direct, and it is this eleven per cent which indicates direction.

Here was the basis for a new loudspeaker, and in 1968 the Bose 901 direct/reflecting loudspeaker came onto the market. It utilised eight drive units in the rear which fired at a wall in order to reflect the sound as in a concert hall and just one drive unit at the front to give direction. All the drive units were small 4inch diameter types which covered the full frequency range. With the 901s came an active equalizer which enabled the user to tailor the response to suit his room. The nett result was the ability to recreate the same concert hall effect.

Since then development has continued to reduce some of the shortcomings of the original speaker. Now Dr Bose is introduc-

just how sound was propagated by instruments, spending a lot of time making measurements in concert halls. The experiments began with dummy head recordings of the Boston Symphony Orchestra made with a microphone positioned in the fifth row centre of the hall. This experiment showed that when the recording was replayed using headphones shrillness was apparent, but when the recording was reproduced in mono all the shrillness had gone.

Many conductors and musicians were asked to listen to this reproduction. One of the conductors remarked that in mono the sound was natural and pleasant but in the binaural mode, all the nasties of his hi-fi came back. When the recording was reproduced on louds-

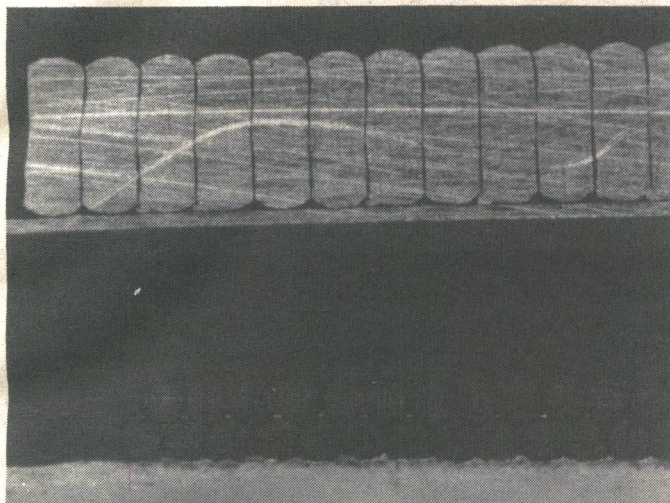


Fig. 6. Microscopic photo showing cross-section of Bose aluminium helical coil (top) and conventional coil (below).

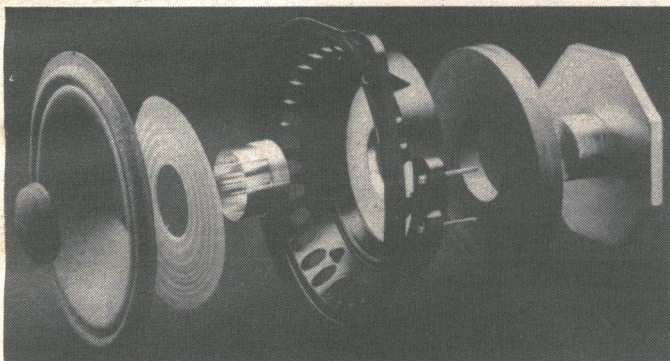


Fig. 7. New high efficiency drive unit, exploded.

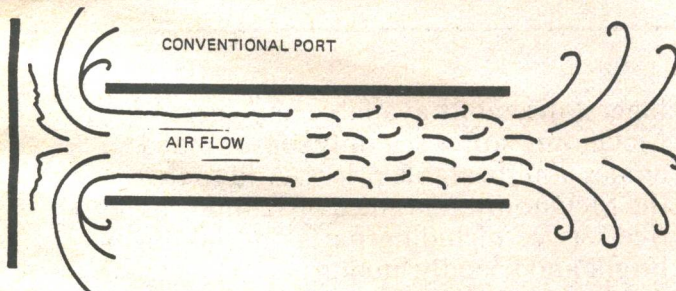


Fig. 8. Conventional port creates turbulence.

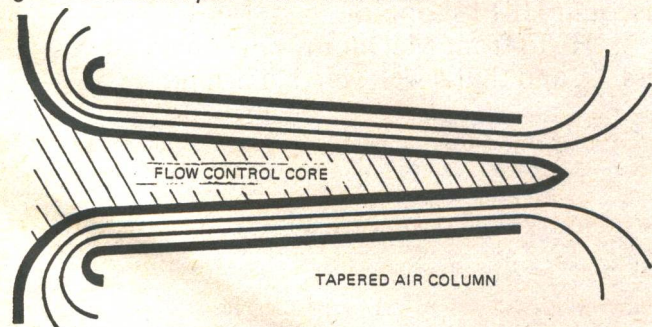


Fig. 9. Tapered bore improves behaviour of air.

ing his new Series III 901.

His original 901 was inefficient. Efficiency has been improved by reducing the wastage of the magnetic flux, which was due to the steel chassis of the drive unit acting as a magnetic shunt (Fig. 5). This problem was overcome by

using a completely non-magnetic plastic chassis.

The voice coil also had to be more efficient than the normal coil, which used round wire with relatively large gaps in it. The solution was to use an edge-wound aluminium strip coil which has no

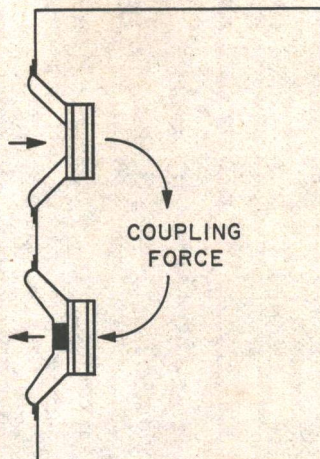


Fig. 10. ABR effect can be generated.

such gaps and has, of course, less mass. The effect of this coil can be seen in Fig. 6.

Other modifications included the use of a new flat-formed rear spider and a new cone profile with a new surround. A unique computer-controlled machine was also designed to enable the new drive unit to be assembled with far greater accuracy. The new efficient drive unit is illustrated in exploded form in Fig. 7.

Attention was next turned to the enclosure. Continuing the search for greater efficiency, the IB enclosure of the previous 901 was changed to a ported reflex design. The traditional reflex port suffers from a large amount of turbulence if it is small, giving rise to unpleasant noises (Fig. 8). The new port design is shown in Fig. 9. This design ensures minimum turbulence and laminar flow.

A further problem of an enclosure with multiple drive units is that they couple and give rise to an ABR effect such as that illustrated

in Fig. 10. This effect is made worse with a ported cabinet. Bose found that if the drive units were partially divided, the cross coupling could be drastically reduced. This design was called the 'Acoustic Matrix'. The construction of this matrix was found to be very critical. Sufficient accuracy could not be maintained with a normal wooden enclosure, so a new moulded-plastic construction was used. The complete matrix can be seen in Fig. 11. The effect of the porting on frequency response improvement is illustrated in Fig. 12.

The new speaker made possible the desired new standard of accuracy and consistency, which meant that a new equalizer (Fig. 13) could be designed to give greater flexibility at closely controlled rates. The effects of the equalizer can be seen in Fig. 14. Not shown in this curve is that the equalizer cuts off sharply below 35Hz.

After the talk we listen to the 901 Series III, but I must say I was disappointed with what I heard! During the all-too-brief demonstration I noted that although bass performance was extended there seemed to be little clarity to the sound. Stereo performance also seemed to be poor. Finally, and perhaps worst of all, there seemed to be a total lack of height or depth to the sound stage, with the image tending to stay in the same plane as the speakers. It was noteworthy, however, that a very high and clean sound level could be obtained from a 30W amplifier, proving that speaker efficiency was indeed high. I feel that it is only fair to say, however, that the ancillary equipment and source material were unknown to me, so an absolute judgement about the 901

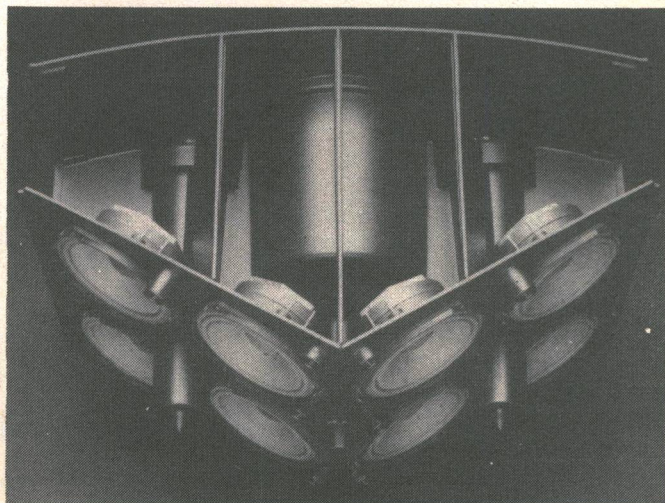


Fig. 11. Partial decoupling between drive units has been achieved by using a plastics moulding for loading and porting.

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Series III performance could not be made.

Summarising the presentation, I think Dr Bose has done much to illuminate the situation of how sound is propagated. For this he can be congratulated on a good scientific analysis of a complex question. I am unsure about his solution to the problem, however, and I have grave reservations about it. The subject is open to discussion, which will no doubt continue 'ad infinitum'. For my part I still prefer direct/radiating speakers, and I do not consider that it is reasonable nor desirable to try to mimic real sound, as all the ambient (reflected) information is (or should be) captured in the recording.

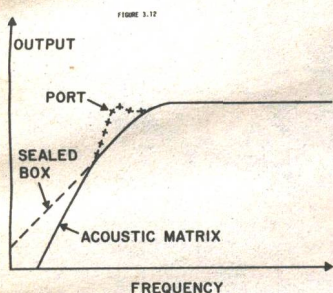


Fig. 12. Effect of porting.

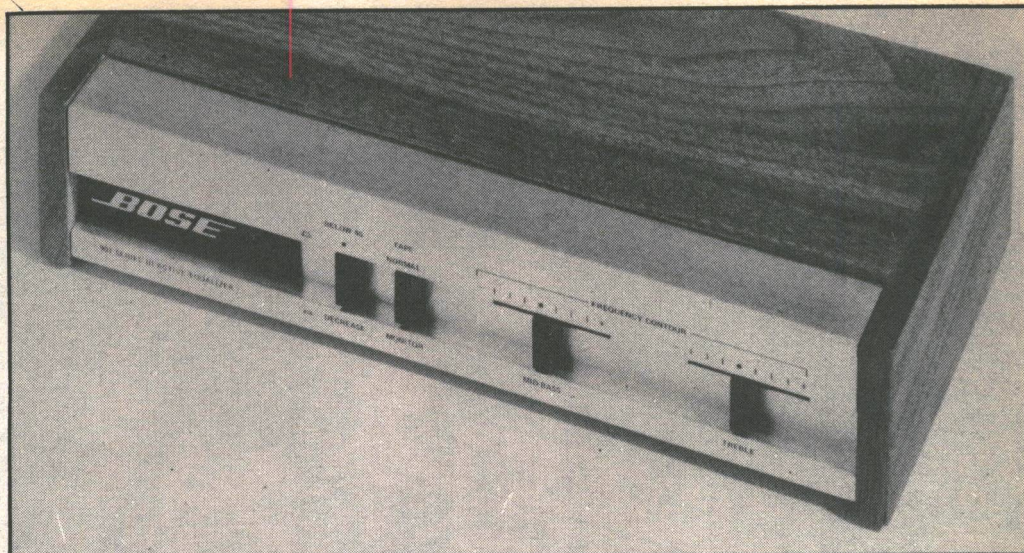
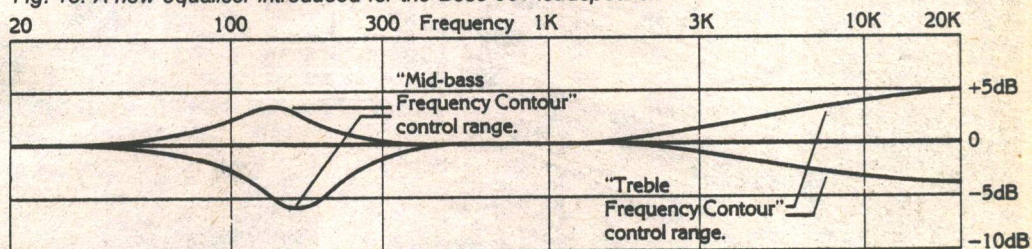


Fig. 13. A new equaliser introduced for the Bose 901 loudspeaker.



EQUALIZER CONTROL RESPONSE

Fig. 14. Effect of the equaliser on frequency response, showing limits.





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IT'S QUIZMAS TIME

Here's a hi-fi quiz for Christmas, and the Editor has generously agreed to make this a quiz with a bonus — there are NO expensive prizes to be won!

Just think — no need to clutter your living room with thousands of pounds-worth of luxury hi-fi, attracting burglars from miles around! What's more (or less) you can learn something — but not much — about your hi-fi IQ with our score interpretation chart.

All you need are a pen and paper, plus of course, your knowledge of hi-fi and music. Who cried, 'What's music got to do with hi-fi?' There's no time limit, but no casual flipping through the pages of the Hi-Fi Year Book or The Big Boys' Guide to Electronics! You're strictly on your own, but if you **do** find the answers get stuck on the tip of your tongue you can try loosening them with a bottle of your favourite Christmas poison!

Have fun — you'll find the answers on page 74.

JOHN (SANTA) PEEL

1 "Chrome" tape is an abbreviation — what is the full name?

2 Only one company produces a cylindrically-shaped power amplifier — which?

3 Several loudspeakers use a device called an ABR. What do the initials stand for?

4 Computers are now being used to help engineers in recording studios — what part of the recording process are they used for?

5 The magnets in a speaker system can upset colour TV pictures. What is the closest a speaker should be placed to a TV set?

- a) 9 inches
- b) 24 inches
- c) 60 inches

6 Wharfedale are now part of the Rank Empire — but what is the name of Wharfedale's founder?

7 Which record company is famous for its Abbey Road recording studios?

8 Pioneer mounted a special promotion for their products in 1976 with the touring Pioneer Express. How much is this publicity drive estimated to have cost?

- a) £20,000
- b) £100,000
- c) £350,000

9 The DC-9 is a famous aircraft, but was also the name of a hi-fi product. What was that product?

10 Which of these musical instructions would cause an orchestra to play fastest?

- a) Adagio
- b) Moderato
- c) Andante

11 What do the letters FET stand for?

12 Which American hi-fi company has a knight mounted on horseback and carrying a pennant as its logo? (for the specialists only, this one.)

13 Revox tape recorders are manufactured by a company famous in its own right for professional recorders. What is that company?

14 QS is one of three surround-sound systems competing for popular approval. Which record company has issued most QS discs in the UK?

15 With which composer do you associate the name Eric Fenby?

16 Cecil Watts is associated with what hi-fi products?

17 BASF are well-known for their recording tape. What do the letters BASF stand for?

18 Which hi-fi reviewer has been nicknamed 'the Guru'?

19 Grado, Connoisseur and Decca — what do these three companies have in common?

20 The mains plugs on hi-fi equipment should be fitted with fuses of:

- a) 1 amp
- b) 3 amps
- c) 13 amps

21 What is the name of the record company famous for its direct-cut recordings?

22 Trio hi-fi products are known by a different name in the USA. What is it?

23 How many radio stations in America now transmit all their programmes with Dolby B noise reduction?

- a) 10-15
- b) 30-40
- c) 100-150

24 Commercial radio stations in two

UK cities took part in recent trials of Dolby FM transmissions. What were the cities?

25 The Videotone Minimax is a popular bookshelf speaker. Where is it made?

26 A loudspeaker produces its greatest bass output when it is:

- a) in an anechoic chamber
- b) pushed into a corner
- c) as near to the middle of a room as possible

27 What hi-fi product is the brand name Stolle associated with?

28 KEF speakers are famous the world over — but what do the letters KEF stand for?

29 The instruction 'Crescendo' tells an orchestra to play louder — what is the instruction to gradually reduce its volume?

30 If you have a speaker rated at 30 watts DIN, is this:

- a) a continuous power rating
- b) a peak power rating
- c) deafening

31 The Japanese call them 'skating' and 'anti-skating' — what are they known as in this country?

32 The BBC has developed its own surround-sound system for experimental broadcasts. What is it called?

33 What do the letters RMS stand for?

34 We all know that Beethoven went deaf, but did Johann Sebastian Bach go blind?

35 Who imports SME pickup arms into the USA?

36 What does SME stand for?

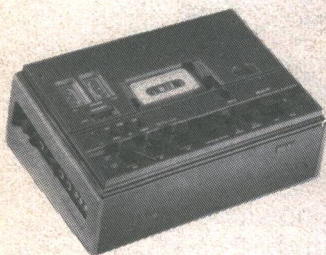
37 Which northern town played host to a major international hi-fi show in 1976?

38 What month was the show held in?

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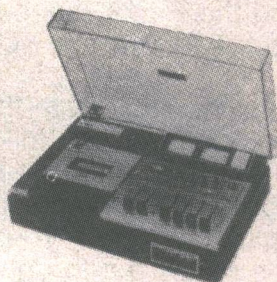
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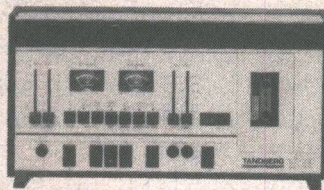
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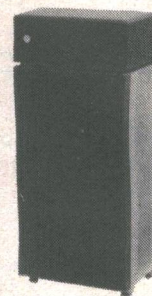
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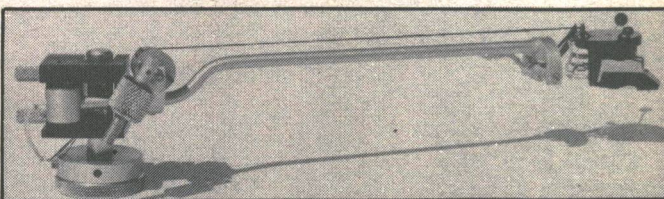
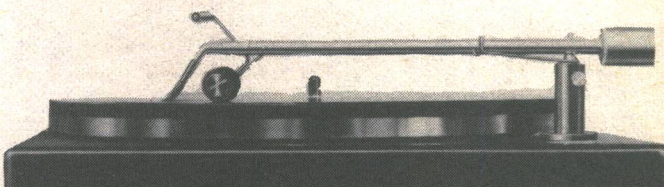
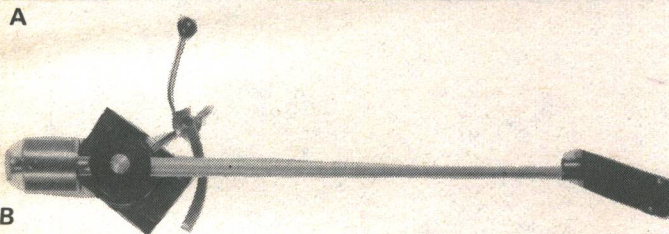
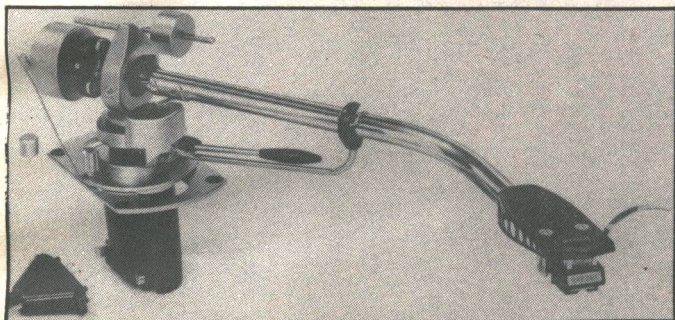
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- 39 Laskys, Quasar, Trio and Eagle have something in common — what is it?
- 40 Charles Cross thought of it, Thomas Edison made it, and Emile Berliner flattened it (!) What was 'it'?
- 41 What is an 'EMT' plat?
- 42 RAM are a small Norfolk-based speaker company. What do the initials stand for?
- 43 What is the approximate speed of sound in air?
- a) 1/5 mile a second
b) 5 miles a second
c) 23 miles a second

- 44 What was the name of the engineer involved in the development of both stereo and television?
- 45 The polar diagram of a cardioid microphone is:
- a) circular
b) figure of eight
c) heart-shaped
- 46 What do the letters L E D stand for?
- 47 What do Londonderry, Fort William and Llandrindod Wells have in common?
- 48 The crack of a whip is caused by its tip breaking the 'sound barrier'. True or false?

- 49 What is the name of the tube connecting the human ear to the throat and nose?
- 50 A bumper one to end with! The following are all place names, but hi-fi products have been named after them. In each case, who was (or is) the manufacturer?
- a) Airedale e) Ditton
b) Sandwich f) Jericho
c) Lancaster g) Chatsworth
d) Kendal h) Stonehenge
- 51 Identify the four arms in pictures a, b, c and d.



LETTERS

Is 'Golden Ears' really dead now?

This seems to me to be the one important question which remains in connection with your well-conducted reviews in the September and October editions, because they have left me wondering what you may think of the benefits of a 'Stage 3'. I ask this because in the shortish time I assume was available for hearing each piece of typical stereo programmed under the 'Performance' heading, every one of the five reviewers could have agreed, but they may have been wrongly impressed by what they heard. Designers make wrong subjective decisions, and the big omission by your review panel was that the long term livability of the sounds was not assessed. People will have been caused to rush and buy, but will long term satisfaction have been assured by your tables of results? A further stage could check this,

even though the panel was wisely instructed not to rely heavily upon the obvious sound differences at the moment of changeover. Stage 3 would admittedly be a wretched, protracted thing, but what other method is there for revealing the very important long term impressions? 'Golden Ears' carried out long-winded review work for many years, and because one could always read between the lines of a 'kind' review I feel his work is not so invalid after all. Surely 'Golden Ears' deserves his last chance of being allowed to conduct just one more test involving the 10 best from your recent review to see over three months how many quirks are revealed. Only this sort of time span can demonstrate whether a speaker model which has so impressed your shorter period group review panel retains its degree of esteem after three months.

The method I like is to buy a recommended recording of something I heard live the night before at a concert and then see how the sound compares. Our tendency to hear what we want to hear can be expected to correct largely for the imperfections caused by time lapse and recording, but at a concert one can make notes of what speaker sound in obligatory. What are we to do in our situation of good long term sound not selling hundreds of pairs a week based on first impressions? The sound people generally prefer when they are recruited right off the street is one with an emphasis on plenty of something, particularly midrange. Is the loudspeaker industry big enough to educate the public as to what sound they should listen for? I think not. Nor could the Government be stirred into legislating for the incorporation of a perspective

control in the form of midrange roll-off inductor being tapped for, say, three valves. You really must conduct Stage 3, with the object and hope of confirming the final results of Stage 2. This is because one could then say that your group reviews faithfully carry out listening before purchase with a very high degree of reliability. Failure of Stage 3 to confirm Stage 2 will bring back 'Golden Ears', and long may he live. Compared with a reference standard product, a model under review or development always sounds either slightly forward, back or the same, but seldom dead right! Only a comparison with 'last night' has much chance of making a listener happy in his own mind, unless it is improvement for kicks which is being sought.

Peter R. Clark
Partner: Clark Speakers

HI-FI SYSTEMS

SYSTEM FOR PLEASURE — NO. 3

ASSEMBLED BY JOHN PEEL



This month's system starts with a fairly basic 'records and radio' combination but adds a touch of luxury with an open-reel tape deck costing more than the rest of the system together!

It comes courtesy of REW, the well-known London retailer. With three central London shops REW has established an up-market image, to a large extent because of its involvement in professional audio and video. It's true that they carry several exclusive (and expensive!) lines, but their shops are also well-stocked with 'bread and butter' hi-fi products. A fourth shop is opening shortly, which suggests that REW's sales are weathering the depression better than many.

Our target price for turntable, cartridge, electronics and speakers was £400; not, you may feel, particularly 'basic'. But inflation has pushed audio prices up by around 20% in the last twelve months, and this is now a popular system price.

I visited REW's Centrepont shop located just behind that infamous London monument and placed myself in the hands of their manager, David Perry.

Considering the relatively small size of the UK hi-fi market by international standards, there is an astonishingly wide range of equipment available. To say we were spoilt for choice would be an understatement!

David had no hesitation in recommending Technics equipment, basing his opinion not only on value for money but on reliability, a factor of which dealers are probably more conscious than their customers. We discussed using a receiver as the basis of the system, but eventually settled for a separate amplifier and tuner on the grounds that this would be of more interest to readers who require only records or who would prefer to add radio at a later date.

Our final choice was Technics' SU-7600 amplifier and ST-7600 tuner, with respective list prices of £107.95 and £110.95, both including you-know-what.

The selected record deck was a Technics SL 20, which at £59.95 is the least expensive in a range that concentrates on direct-drive designs. The SL 20 is a belt-drive model however, and one David confirmed is popular with REW customers.

Favourite cartridge for this deck is the Shure M75ED2, but this cartridge is so well-known and so widely reviewed that a less 'conventional' choice was appealing. Fortunately REW has just such a cartridge up its sleeve in the shape of the Stanton 680EE, a recently-introduced model that is second-in-line to the 681EEE. At £34.95 it costs around three times as much as the ED2, but REW recommends the 680EE to customers who are willing to pay a premium price for a cartridge which will realise the full performance potential of medium price turntables.

Choosing a pair of speakers was far from easy, as is generally the case, and in the end Bowers and Wilkins DM4s were chosen as much because they weren't already familiar to me as for any other reason. At £140 they brought the total system cost up to £454, but REW would offer a 10% discount which brings us down to £408, about as near to the original budget as one could ask.

Many hi-fi buyers would choose a cassette deck to complete the system, but we

HI-FI SYSTEMS

decided to be a little different and opted for an open-reel machine, the Teac A-2300SD. Reel-to-reel decks are enjoying something of a revival at the moment, and a substantial proportion of hi-fi enthusiasts compare open-reel decks with their cassette competitors before buying. The 2300SD has a list price of £472.50, again less 10%, and since this really is a rather special 'extra' I'll leave assessing it until after the main system has been poked, prodded and listened to.

Features

Starting off with the input end of the system, the SL20 offers two speeds, 33 $\frac{1}{3}$ and 45, and is what hi-fi jargon describes as a 'manual' turntable. This means that the arm is controlled by a lift/lower lever, requiring the user to vacate his chair at the end of a side to separate cartridge from record. Turntable speed is variable using two small preset controls, but since these require a screwdriver, frequent adjustment would be something of a chore. Few decks at this price offer this facility, but although I can't criticise its actual operation most buyers will probably find it of academic rather than practical interest.

The arm fitted is what I can best describe as a typical Japanese concoction, suitable for most mid-price cartridges and as usual is simple enough to set up, even for non-technical enthusiasts. Japanese arms are often criticised in this country for their relatively high mass, but the fact of the matter is that some cartridges actually work better in arms of this type. The Stanton 680EE requires a reasonably low-mass design, and David suggested using an SME headshell in place of the rather massy one supplied by Technics.

The 680EE's main claim to fame is that it is based on the more expensive 681EEE, used by more disc cutting engineers as their 'calibration cartridge' than any other. With a recommended tracking weight of 1 $\frac{1}{2}$ grams and a slightly lower than average weight of 5 grams it looks good on paper and is increasingly chosen by broadcasting companies for 'on-air' use.

Immediate distinguishing feature of the Technics SU-7600 is its unusually high power output for the price: 41 watts RMS per channel. This hasn't resulted in any sacrifice on the facilities front, and it can accommodate a turntable, tuner, two tape decks and then still have an input left over for special requirements. Two pairs of speakers are catered for as well as an output for moving-coil headphones.

As with most Japanese amplifiers the output is directly coupled to the speakers, this design claiming to achieve better bass response than the 'old-style' capacitor-coupling. The output stages

and the speakers are protected by a relay and sensing circuit which mute the output under adverse conditions as well as providing a delay of about five seconds after switch-on to allow the circuitry to reach its correct operating conditions.

The ST-7600 receives FM and medium-wave aerial is built in and can be UK as well as continental-type aerials. A medium-wave aerial is built-in and can be rotated for best reception, but normal facilities are provided for connecting an external MW aerial if desired.

The tuner switches automatically into stereo, but if the resulting signals are too noisy, either because of difficult reception conditions or an indifferent aerial, the tuner can be switched back into mono, resulting in more noise-free reception. As a 'half-way house' between these two states there is a 'hi-blend' option, which slightly reduces treble separation but

gives a useful improvement in signal-to-noise ratio.

Unusually for a tuner in this price bracket, the ST-7600 offers what is called 'variable selectivity'. This can be of value to users who have several stations close together on the frequency dial, and although it can undoubtedly reduce interference from unwanted stations it does this at the expense of an increase in distortion.

There is switchable muting, allowing tuning without inter-station hiss under normal operating conditions. When the muting circuit is operating, all inputs whether noise or actual transmissions are silenced if they are below a certain level. It is therefore useful to be able to disconnect this facility if you want to listen to weak stations where reception is poor.

Two tuning meters are provided, one to give an indication of signal strength and



Concentric controls on the Teac for left and right channels make fading much easier than independent knobs.



Arm mechanism on the SL-20 looks very slick.

the other a centre-zero type for accurate tuning.

Completing the complement of tuner facilities is a variable output control. This acts in exactly the same way as a normal amplifier control and offers the advantage that tuner output can be matched to that from the turntable, avoiding dramatic changes in volume when changing inputs.

The DM4s are what the Americans would call a 'bookshelf design', but by British standards they are halfway between this and the size we associate with floor-standing models, measuring 21in. x 10in. x 10in. B & W recommend stand-mounting next to a wall, and suitable stands are available at about £12 a pair. DM stands for 'Domestic Monitor', but this has about as much meaning as 'GT' on a car! Three units are used with an eight inch unit for bass and mid-frequencies and Celestion and STC tweeters.

Power and Safety

As supplied all the equipment was already set for 240volt 50Hz operation, ready for plugging into the mains, in other words. Most users won't care a hoot, but everything in this system can be changed over to suit power supplies in almost any country at the flick of a switch. I didn't actually query this point with REW, but I suspect this may be a contributory factor in their enthusiasm for Technics — London hi-fi dealers do a considerable amount of business with European customers simply because hi-fi prices here are far lower in many cases than on the Continent.

Be that as it may, all the equipment tested appears to conform to current safety regulations, although owing to the complexity of the regulations this isn't a point that was checked in detail. No mains outlets are provided on the back of the amplifier, so you will need three mains sockets for the basic system, or four including the tape deck.

Setting up

To put it in a few words: nothing could be more simple. The turntable outputs use phono plugs, as do the tuner and amplifier. There is, in fact, a DIN connector in parallel with the phono sockets for tape deck number 1, but where possible the use of phono connectors will generally result in better signal-to-noise ratios.

Speaker connections from the amplifier use screw terminals, as do the aerial inputs on the tuner, and input to the speakers is achieved using either DIN speaker plugs or the preferable 4mm plugs supplied.

My only real criticism in this area concerns the speaker stands. Because the DM4s are relatively small for stand mount-



The complete turntable. Good basic specification and not too dear.

ing the stands are fairly tall and it is only too easy to knock them over. Even so they are somewhat on the low side from a performance point of view, leaving the drive units rather below optimum listening height with most seating arrangements.

Operation

As we've come to expect from Japanese equipment, everything worked exactly as the manufacturers intended.

'Click-stop' controls are becoming very popular, usually for tone and balance controls. As a variation on this theme the SU-7600 features a volume control with 41 click settings. This seems to be entirely a marketing gimmick, and something of a pathetic one at that. The legend round the volume control has 51 markings, making it virtually impossible to relate the click stops to marked settings and making it difficult to set the volume control to any desired position that doesn't correspond exactly to one of the click stops. This is an example of the marketing department getting the better of common-sense, but in practice it isn't sufficiently off-putting to deter potential buyers.

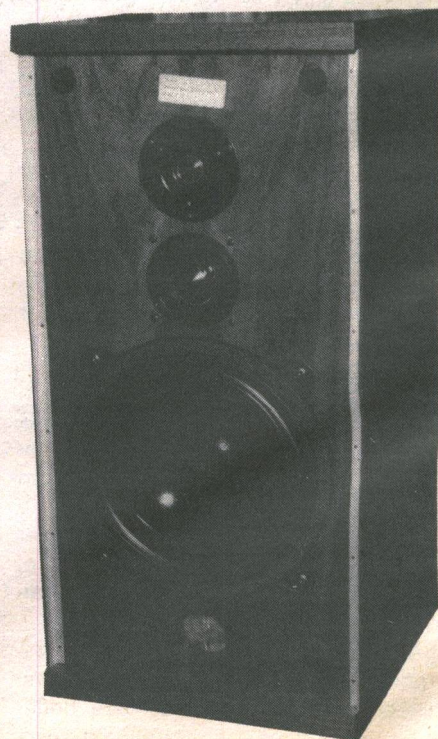
The loudness control, designed to compensate for the ear's drop in sensitivity to low and high frequencies at quiet volumes, has the usual gross effect. I get the distinct impression that either manufacturers have some funny ideas about the amount of bass boost required or else they design the loudness control's characteristics so that the boost it introduces will be noticeable to even the most cloth-eared customer in the noisiest shop!

The treble filter is rather useless, introducing far too much cut for most modern programme sources but rather too little for those users who would like to make the most of older material, such as 78 records.

Sound Quality

The SL 20 proved a good 'budget' choice to work with the 680EE. At 1½ grams the combination tracked well, though the 680EE is marginally inferior to the 681EEE in this respect. All aspects of the turntable and arm performance were as expected from a deck in this price bracket, and whilst the SL 20 lacks any 'star' features to raise it above its competitors, by the same token it is certainly no worse.

The 680EE justifies its relatively high cost with an excellent all-round performance. Readers may know that I'm something of a moving-coil fan, and in comparison with admittedly more expensive car-



B&W DM4 speaker

tridges of this type, the 680EE lacks a degree of 'openness' and 'sweetness'. Its bass end is slightly on the warm side of neutral, midrange is commendably clean and top marginally nasal. Overall the sound has a very slightly 'distant' quality which I for one find vastly preferable to a forward, more aggressive sound.

The ST-7600 needs a reasonably strong signal for noise-free stereo, but in the context of price some compromises are only to be expected. Treble sounded very slightly rough, but not sufficiently so to become tiring, and this tuner is obviously a competitive package that can be recommended. One criticism, though; on my sample the tuning indication was somewhat inaccurate, Capital being received at 96MHz instead of 95.8, and other stations were off by a similar amount. It is quite possible that this isn't typical, and to be fair, many other tuners show some tuning scale mis-alignment.

The amplifier lived up to its specification, and the sound quality is probably comparable with the better designs in this price range. That isn't to say, however, that I particularly like the sound. Other listeners also commented on an 'edgy', tiring effect and a lack of clarity at all levels. These effects are particularly noticeable in comparison with good valve amplifiers (apologies to all those readers who are sick and tired of hearing about valve amps!), but these are strictly for the enthusiast prepared to locate a good sample and tolerate all operating eccentricities.

In comparison with less esoteric equipment the SU-7600 comes out reasonably well, and with a higher than average power yield.

Even with the speakers mounted up against a wall and fairly close to room corners, deep bass was rather lacking. Bearing in mind the DM4's size and price this isn't too significant, but upper bass was frequently criticised as being 'wooden' and 'boxy', effects that detracted from the overall sound despite the speakers' moderately smooth and pleasant midrange. Top was extended and fairly clean, but it did tend to expose any shortcomings in the programme material.

Reel-to-reel for top quality recording

To justify the asking price of £472.50, Teac's A-2300SD needs to be an excellent all round performer, although performance isn't the only area of importance to a tape recorder designer. There are several examples of recorders that achieve

high quality, but they are so inconvenient to use their appeal to most hi-fi enthusiasts is limited.

The 2300SD is a development of the 2300S, a quarter-track recorder running at 7½ and 3¾ ips, the principal addition being Dolby B noise reduction. The 2300 is a three head machine with completely separate record and replay electronics, allowing 'off-tape' monitoring as well as permitting a number of creative 'tricks', such as echo and sound-on-sound.

In order that the Dolby encoded tape can be monitored from the playback head at the time of recording, four Dolby processors are built-in, but the extra cost of this is worthwhile since it would be more difficult to judge the recorded quality if monitor output had to be played back in its encoded form.

Sad to say, tape handling is still often a weak spot with many tape decks, but the 2300SD is exemplary in this respect. Even using triple-play tape it proved impossible to wreak havoc, thanks partly to the 'delay' circuit Teac incorporate, preventing the deck changing functions until the tape is stationary. Users of a certain other reel-to-reel recorder will know exactly what I mean!

Inputs from a pair of microphones and a pair of line inputs can be mixed, although the use of concentric controls makes stereo fades rather difficult to accomplish if different settings are used for the two channels.

Dolby B essential

Output level is variable from a front-panel control, which also sets the level at the headphone monitor socket, designed for low-impedance phones.

The object of the Dolby circuitry is to reduce tape noise, but by means of a back-panel switch it can also be used to decode Dolby FM radio transmissions with a suitable tuner. Although experimental Dolby encoded broadcasts have taken place in the UK, it is by no means certain that these will become a regular feature, and this facility is of greater attraction to the American market where over 100 stations now use Dolby as a matter of course.

Dolby B can achieve a 10dB subjective reduction in tape noise, but it relies on accurate matching of record and replay levels if side-effects are to remain inaudible. Teac provides controls on the back for setting these levels, and the simplicity of their operation means that even the least technically-inclined user will be able to set the Dolby circuits up for best results with any tape type.

Acoustic Research, who market Teac in the UK, recommend TDK Audua tape



Teac A-2300SD — neat, tidy and Dolby.

for best results, although many modern tapes can, in fact, be used successfully. There are switches for two bias levels and two types of equalisation, and these can be used to obtain best results from tapes with different requirements.

Such a brief description of the 2300SD's facilities omits many less obvious features which only become apparent once you actually start using the machine. Suffice it to say that this recorder is a joy to use, displaying few annoying eccentricities and working reliably over long periods. This smoothness and ease of operation undoubtedly accounts for a proportion of the Teac's cost, and although some enthusiasts would prefer the same standard of performance at a lower price and without user-convenience, there is a substantial market for a recorder combining good performance with impressive 'feel'.

Since the opportunity presented itself, I made comparisons between the 2300SD and Teac's 'top-of-the-line' half-track recorder, the A-7300 2T. Even under critical listening conditions it is difficult to hear any difference between live and recorded signals using the 7300, whereas some softening of bass and blurring of transients are audible under the same conditions using the 2300SD. Nevertheless, quality is impressive for the price, and audibly cleaner than any cassette deck, at any price, that I have heard.

The use of Dolby B noise reduction is justified, since quarter-track machines do tend to be a little on the 'hissy' side, and classical programme material in particular demonstrates the value of an improved signal-to-noise ratio under practical conditions.

All aspects of performance were to specification and extensive testing has revealed no weak areas. I wouldn't claim that the 2300SD is the bargain buy of the year, but if you're looking for a recorder that combines open-reel quality with domestic acceptability and the promise of a long useful life it is worth looking at very seriously.

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Realising how difficult it will be for people to be as generous to Charities this year as they would wish, the Foundation for Audio Research and Services for Blind People has been considering ways in which it can be helpful to subscribers and donors. One of the objectives of the Foundation is to greatly increase the amount of audio literature available to those who need it. Another is to improve the general standard of audio equipment available to visually handicapped people. Increasingly, reference is being made to 'Haslaf listening' which is, so to speak, the Foundation's war cry. It derives from the acronym 'high arousal stimulation with low aural fatigue'.

The Foundation is happy to announce that, thanks to the generosity of Studio Tape, the U.K. Ampex distributors, they will present to any donor of £3 one of the Ampex 220 Demagnetiser and Head Cleaners. Regular use of this device will ensure that all traces of oxide and residual magnetism are removed from record/playback heads in cassette recorders. This will undoubtedly contribute to better Haslaf listening in 1977, and will help to ensure that precious recordings are not gradually degraded because the heads are not in tip-top condition.

Cheques/Postal Orders should be made payable to "HAS-LAF APPEAL" and addressed to Haslaf Appeal, 12 Netley Dell, Letchworth, Herts SG6 2TF.

Space donated by Hi-Fi for Pleasure

FEATURES

The price of addiction



By Cyril Cunningham

I must confess to being addicted to hi-fi in much the same way as many people are addicted to smoking or drinking, though not for me the musical equivalent of other peoples' fag ends. In times of stress I like to escape to my study, flop into a comfortable chair and soak myself in whatever music suits my mood. And that is my trouble. Although I have a fairly catholic taste, I have great difficulty in acquiring sufficient music in convenient packages to suit my ever-changing moods.

Like all enthusiasts, I have three problems which experience tells me are outrageously expensive to mitigate. The first is to obtain a sufficient quantity and variety of music. The second is to get it from a source of sufficient quality so that it passes through my installation without noticeable degradation. The third is to package this music into convenient and tasteful programmes to suit my mood. In short, I am an addicted but discriminating listener with a low tolerance to distortion and LPs made by popular artists or groups. I enjoy the occasional track of Kenny Ball, Barbra Streisand, the Carpenters or Norrie Paramor, but a full LP of

their material bores me to distraction. Beethoven, Tchaikovsky, Ravel and other classical giants I can take in much larger doses.

Actually, I have a fourth problem. I spend many lonely evenings in hotels and I like to escape the barflies, the corpses draped round the colour television and other more dubious pleasures by importing my own music in preference to listening to what passes for a radio in hotel bedrooms.

Upgrading — a mug's game

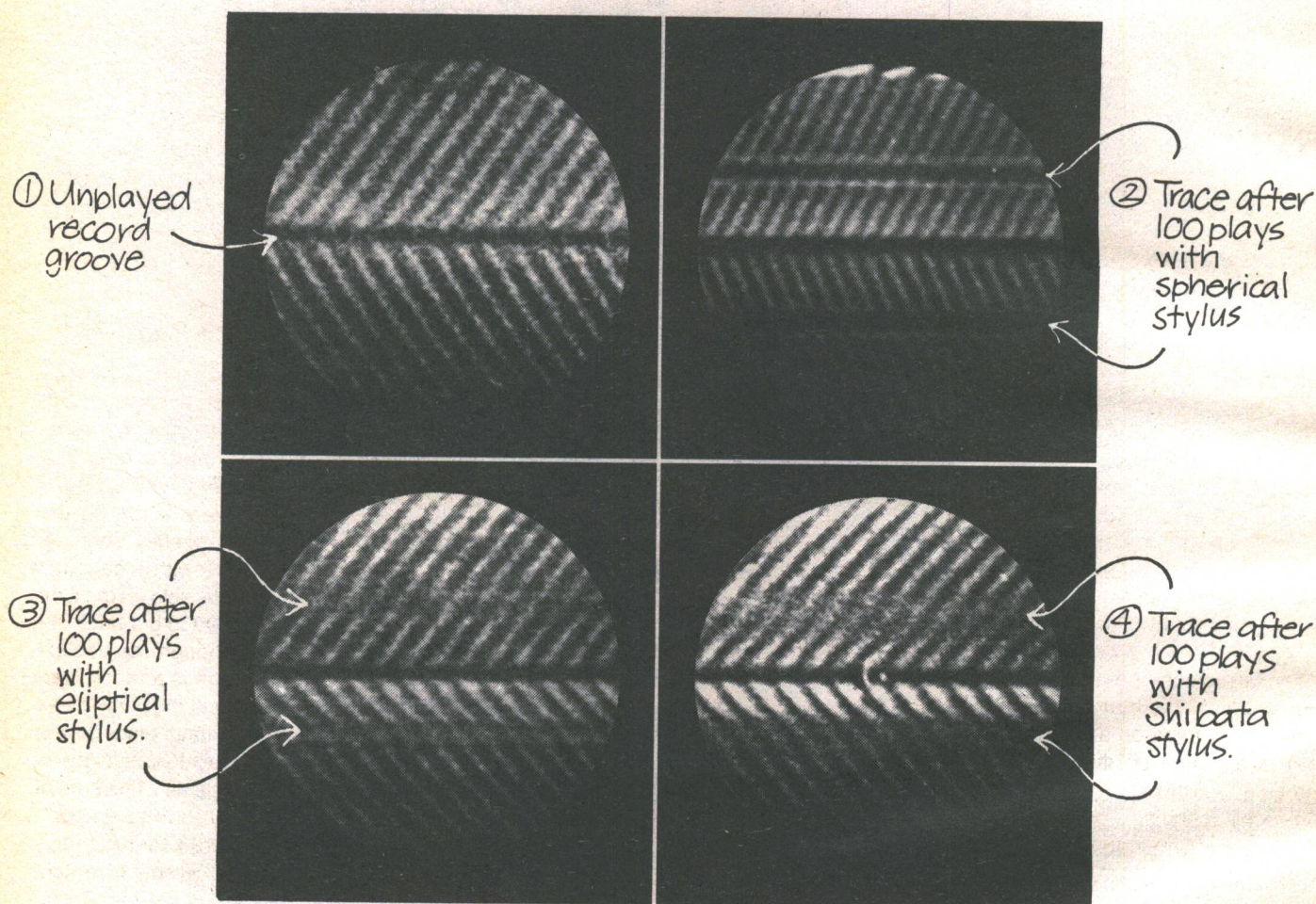
I am more that a little irked at the failure of the hi-fi press to devote more attention to these very practical problems. Admittedly it is very nice occasionally to read about other people's installations. It massages the ego if they are cheaper than one's own, and if they are not, it gives one expensive ideas about 'upgrading'. But experience has taught me that upgrading, like betting, can be a very expensive mug's game, and unfortunately one that, wittingly or unwittingly, is fanned like a galley furnace by the hi-fi press. Improvement of one part of the hi-fi chain requires improvement of all the others and then one is caught in the rat-race

where status, fashion and envy impels otherwise sane people to throw away perfectly adequate installations with years of life left in them.

It is, I suppose, useless for me to say that I have witnessed with my own ears that a one thousand pound installation can do no better with a lousy sound source than my own modest set-up centred upon a Marantz 1060 amplifier (five times returned to the importers for repairs before they gave me a new one in exchange) and a pair of Mark One IMF Compacts. A badly-manufactured record or tape remains bad and may even sound much worse when played through a very expensive installation. As a matter of interest, the thousand pound set-up with its massive Tannoy speakers produced a realistic sound only when the volume was too great for the size of the room and the vibration caused the SME arm and its expensive cartridge to dance about the record — my record!

Everybody launching into hi-fi speedily runs into the first of my problems. The naive endeavour to solve it by rushing out and buying as many records as they can until they have run out of money. They then discover that there is a limit to the

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FEATURES

The price of addiction

number of times that they, and their families, will put up with a restricted repertoire. Nothing is more pathetic than an outmoded pop record that has been flogged to death the previous week on the pop radio channels or a dated orchestration of an enduring piece. To a lesser extent, over exposure applies to the more popular classics. But a key factor in making the manufacture of hi-fi equipment a flourishing business is the quite amazing capacity of the human intellect to learn or anticipate every note of every record or tape, even if the addict possesses a library of over a hundred of them.

Licence to steal

The obvious solution to this problem is to buy a tuner, which these days costs little more than twenty full price LPs. Only afterwards does one discover that this produces other problems. Although it increases the supply of material, it provides no means of controlling the *sequence* in which it arrives. It is also intrinsically transitory and cannot be captured or packaged without further expensive equipment (and a licence from the Performing Rights Society). Also, it is quite extraordinary how much of the material that one would like to hear is broadcast when one is not around to hear it or is put out at unsociable hours such as shaving time or first thing on a Sunday morning!

The apparent solution to this second problem is to invest in a tape deck, but it is only after spending a great deal of money that it is discovered that while a deck can capture material, it still cannot alter the sequence in which it is broadcast, or the times of transmission. It is infuriating to have a classical tape in the making on a machine when a favourite piece of jazz or light music is suddenly broadcast. And have you noticed how frequently disc jockeys and announcers overtalk the beginning and ending of pieces of music and then follow it with another piece without introduction? To capture a complete piece without trite chat is no mean feat and may mean hours standing over one's machine throughout a pre-selected programme. It can take months to make a complete tape, that is, to create a programme of one's own.

Hi-fi or a cosy home?

In any case, to enter tape recording is to walk through a technical minefield into the battlefield of open reel versus cassette tapes. When I first thought about tapes, I tramped round many dealers in London

and the provinces to sound out their opinions. They were all unanimous on one point: a cheap open reel stereo deck produces a less noisy and more robust recording than a much more expensive Dolby cassette deck. If this is the case, I asked dealer after dealer, why are there so few cheap open reel decks on the market and so many cassette decks of fragile construction, limited life and indifferent performance? Answer: Public demand for compactness and convenience. After reading Angus McKenzie's little book on cassette decks I am more than ever convinced of the madness of public demand! I prefer the open reel machine, but I am not much interested in open reel or cassette decks that cost as much as or more than a second-hand car, or a domestic central heating system or a holiday abroad for two. Expensive machines may be admirable for what is called 'creative recording', but they are strictly for recording enthusiasts with all the technical knowledge that this implies. I am not a recording enthusiast; I am a *listening* enthusiast with a delicate ear for distortion, sub-normal mechanical and electronic aptitudes and a growing interest in the sequencing of my favourite music into tasteful programmes.

A reel solution

So, when I opted for open reel, full of technical ignorance and oblivious to the problems of sequencing, I set out to buy an Akai 4000DS. But for some reason (probably an impending price increase) they had completely disappeared from the market. Two duff Tandbergs later, I gratefully fell upon an Akai 1721 recorder, described to me by the dealer as a good old work horse. It has built in squawk boxes, but, with a decent pair of earphones, this portable machine seemed to answer my fourth problem. It can be dragged around hotels, although it is about as portable as a grand piano. At any rate, the earphones and Wagner effectively blot out the noise of the protesting beds of couples bundling in adjacent rooms! The deck itself, when fed through my amplifier, produces very commendable recordings. One has to put one's ear hard against the speaker grills and turn up the volume and bass to hear tape hiss; this is without Dolby. Earphones are a little more revealing. Sad to say the reliability of the deck has been disappointing.

Clearly, the sequencing of material can only be altered and programme-making can only be achieved by using a second tape deck, or by the extravagant use of tape and scissors. The latter is not

recommended if one is to preserve the coherence of the material on the reverse track of the tape! But two decks demand special facilities in the amplifier and push one into the expense of 'upgrading' again. For example, although my Marantz can accommodate as many as three decks, only one of the outputs can be used for recording; this means that in order to make a programme the machine used to record has to be unplugged and replaced with a deck to which the selected material is to be transferred. The master recorder then has to be plugged into one of the play-back inputs. It involves a lot of fiddling with leads. The alternative is to buy a new amplifier that can do the trick at the flick of a switch on the front panel.

Control over headphones

I have recently asked a number of dealers whether any tape machines are made which possess a built-in facility for transferring material from a master tape to a cassette; in other words, an editing facility. Apparently there were some on the market, once. I have recently seen an Akai open reel machine with a cartridge recorder built into its side, sold (at the time of writing) for about £200 to get rid of it! I would have thought (though the dealers say otherwise) that there is a ready market for a simple open reel machine with a facility for transferring material to cassettes and possibly for playing cassettes as well as open reel material. I'm sure it would be cheaper than buying an open reel machine, a Dolbyised cassette deck and a new amplifier with adequate switching facilities.

One final point concerning my fourth problem, conveying my own music to hotels. I wondered if a cassette deck with headphones would answer all my problems, including programming. Upon looking into this possibility I was surprised to discover (and so were a good many shocked dealers) that very few cassette decks possess any control over the volume of the earphone outputs! Most have fixed volume outputs. One dealer suggested that I might overcome this problem by buying a pair of earphones with volume controls, but craftily avoided mentioning that this only permits a decrease in volume! The Sansui 737 has earphone volume control, as does the Sonab 500 and the Aiwa 1600. But the Aiwa 1300 does not, neither do the Sony front-loaders.

My thanks to Chris Haines of Holbury Hi Fi, Holbury, for his technical advice and demonstrations in preparation for this article.



Who needs exhibitions?

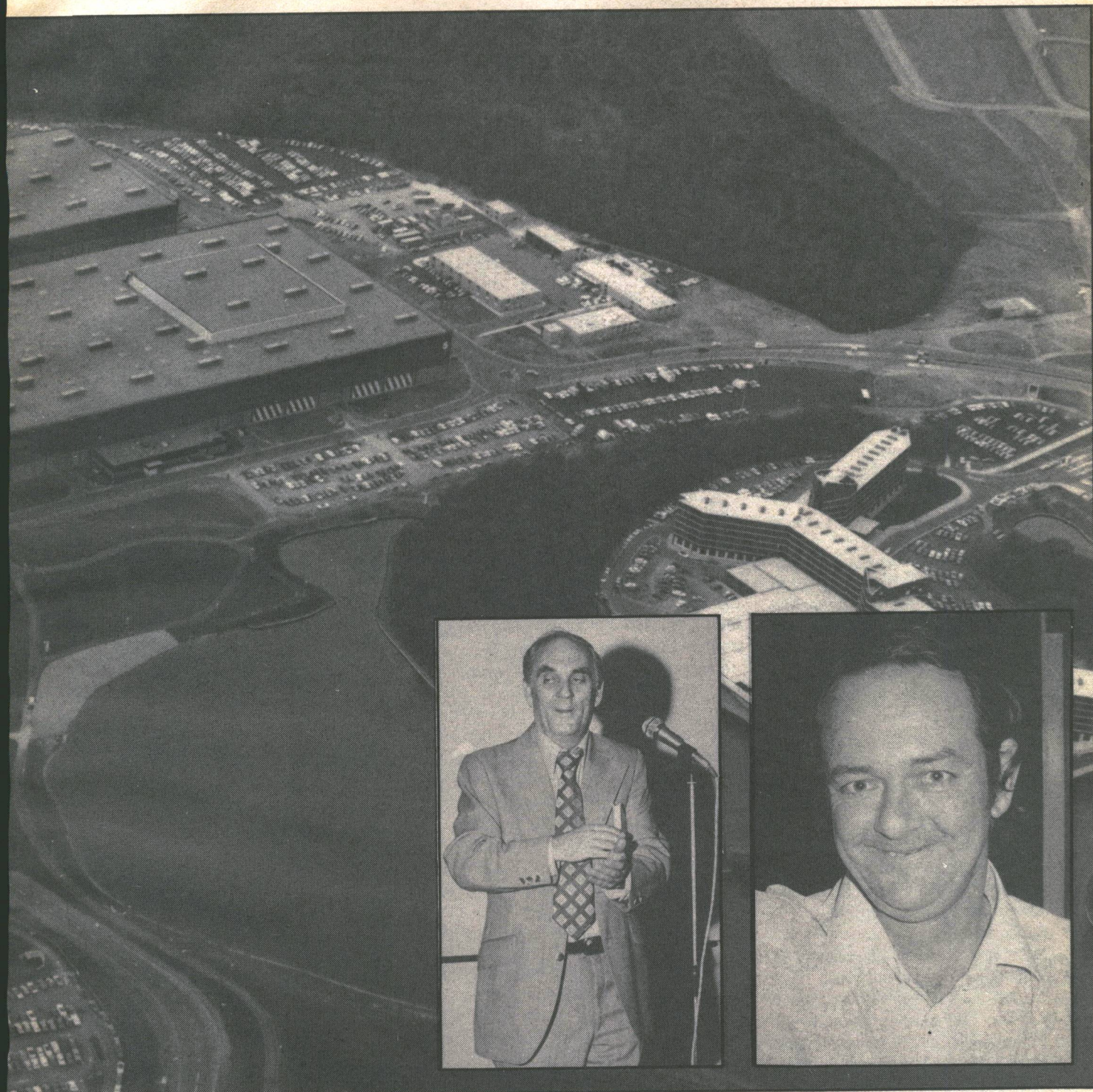
The best of Brum – a grey elephant? Faces are Stan Smith – the man from the North, and Don Quillen – the man from the South.

by Adrian Hope

Does the public want or need audio exhibitions? Are they of any value to the press and trade? Is the cancellation of last year's Olympia Audio Fair a signpost to the future. With these questions in mind I spent the best part of a week at Harrogate last September sounding out general opinion and talking with the organisers of not only that exhibition but also the Heathrow ventures.

Potentially the public should benefit from a well run open exhibition. No single retailer can ever possibly hope to house under one shop roof all the rival equipment that is to be found at a large audio exhibition. I am of course here discounting what some people see as a real threat to the viability of exhibitions in general, namely low-budget, very local events, where the organisers advertise the participation of major name brand firms and these turn out in practice to be represented only by a local salesman with a few selected dummy dem models. The open days of Heathrow, Olympia (in its better years), Harrogate and perhaps

EXHIBITIONS



even Birmingham in the future, can give the serious hi-fi enthusiast an unrivalled opportunity of seeing and hearing a wide range of competitive equipment in operation. He can also compare price for price and performance for performance and get horse's mouth answers to burning questions.

But as the exhibitors, better than anyone else, well know, public exhibitions are also open to time-wasting visitors. They have no real interest in the equipment on display and are concerned only with collecting as many free brochures and samples as possible, as well as perhaps pinching anything of value that isn't bolted

down. Olympia and Earls Court have an abominable track record for thieving. Motor car engines, printing presses, yachts and whole bathroom suites have all been known to disappear, along with the more obvious objects of light-fingered visitors' attention such as gramophone cartridges foolishly left by their exhibitors in pickup arms within reach of the public. The large equipment disappears by dint of clever confidence tricks, teams of over-alled 'workmen' marching in and unscrewing what they want and walking out unchallenged. The smaller gear disappears by simple sleight-of-hand. But no one yet knows quite how, soon after

this year's Olympia exhibition was cancelled, a £600 ultra-lightweight bicycle came to vanish from nearby Earls Court. Perhaps a thief in shorts cycled it away.

Thieving, of course, isn't the only reason why Olympia was cancelled this year. Dishonesty is after all nationwide, and some firms even at Harrogate, where the public are noted for their friendly attitudes and general trustworthiness, felt it worthwhile to employ security guards on a round-the-clock basis. No, Olympia was cancelled as a result of massive, domino-style lack of confidence spreading through the industry. Pioneer, for instance, having spent £70,000 on

EXHIBITIONS

their one week's efforts last year (floor space and everything else included) decided this year to spend £100,000 on mounting a three-month mobile exhibition round the country, using British Rail rolling stock drawn, for the most part, by eye-catching, news-making steam engines. Pioneer's disenchantment with Olympia came to a head at nine o'clock on the last day of the Exhibition last year — it was then that the electricians in the hall threw the main light switch, leaving the Pioneer team in darkness and making further work on taking down their stand impossible. Other large firms believed or known to have pulled out by the time the exhibition was cancelled included Garrard, B & O, Rank and Sonab.

Emergency Show

Following the demise of Olympia, Emberworth, organisers of the Heathrow Spring Exhibition, made a creditable attempt at putting something together for London in the autumn — as they put it, as an alternative to "no show at all". Taking the Excelsior Hotel as their venue, Emberworth pulled in a score or so of exhibitors. This could have been insufficient to make the show worthwhile but was, in practice sufficient because most of those exhibitors were of significant size; for instance Bauch with Revox, NSS with Nakamichi, Webland with BGW, KLH and Microacoustics, National Panasonic with Technics, and so on. Although the entire exhibition took up only one corridor of the hotel and even on Saturday, public day, it was far from crowded, this worked in favour of anyone who had a serious interest in the equipment on show. In fact it would be safe to say that, almost by definition, the 5000-plus visitors did have a genuine interest in hi-fi. Due to limited advertising only those who read hi-fi magazines would have known about the exhibition and only those with iron will and serious intent would have braved London Transport's inadequacies, or Heathrow's parking problems, and made the trek out to an airport hotel in the wild outskirts of Hounslow for an obviously small venture. "There aren't any time-wasters," said one exhibitor with relief, summing up the situation. And if, like KLH, you are exhibiting loudspeakers costing nearly two-and-a-half-thousand pounds a pair (the superb KLH9 electrostatics) you deserve to be spared time-wasters and have some serious visitors. Already dates have been set for a similar show next year.

The 1976 Home Electric Domestic Appliances Exhibition at the new Centre in Birmingham provided a reasonable opportunity for the Midlands public to see the audio and video wares of some large companies, (National, Garrard, Sony,

etc). But the emphasis at the exhibition was without doubt on white goods (washing machines, cookers, fridges, etc), and it is now confirmed that the 1977 Spring Birmingham Exhibition will not be open to brown goods — the vernacular term used by the trade to cover audio and video. Instead of HEDA, there will be IDEA (International Domestic Electrical Appliances Trade Fair) and the brown goods destined for Birmingham will be on display at a variety of London hotels and, of course, at the Heathrow Hi-Fi Spring Exhibition. Sorry about that, Birmingham, better luck in 1978.

That at least some sectors of the public do gain a great deal from visiting audio exhibitions on their open days is indisputable. Harrogate exhibitors are well familiar with one charming lady who seems to know more about the price of every piece of equipment in the catalogue than many salesmen. The calibre of public attendance is also not to be governed by the amount it costs to get in. Harrogate visitors, who are admitted free, are generally polite (albeit delightfully blunt if any exhibitor is fool enough to try and fool them), and, will almost without exception, sit through to the end of any lecture or demonstration they attend — even if it is the bitter end for them. At Olympia, where price of entry is becoming absurdly high, some sectors of the visiting public were often rude, casual and quite paranoid over getting their money's worth. The lecture audiences were continuously mobile, leaving the speaker feeling as if he was addressing a crowd in a central concourse at Piccadilly Tube Station. But even at Olympia there were enough serious visitors to make the question of future exhibitions of real importance to the public.

Without doubt also, the trade and press benefit greatly from a well-run exhibition. The collection of so much competitive equipment under one roof and at one time is a great aid to busy retailers and wholesalers in deciding what to order for the coming season. It is also obviously an ideal opportunity to haggle face-to-face with any manufacturer who has given problems of delivery or reliability over the past season. At Harrogate this year I felt a degree of real sympathy for the exhibitors who were re-showing the stylish range of Lecson equipment with a promise of considerably better reliability, following policy and political reshuffles. Almost every visitor was asking the same question — "Can we rely on individual models being up to the undoubted potential of the range?"

Mine of information

Manufacturers also have an opportunity to redress any balance upset by unfairly



unfavourable reviews. Dahlquist loudspeakers were on display and sounded a thousand times better than anyone would have expected from reading a previous damaging review. But it is a pity they cost so much, and look so much like a cheap copy of a Quad Electrostatic. It is also a pity that the demonstrator let his bitterness to the audio world around him shine out of his ears. Perhaps this point best underlines what I believe to be the most important role of exhibitions, especially for the press. They form invaluable and unrivalled waterholes of information. A few days saturated in the company of audio enthusiasts, pundits, bigots, rivals, friends and downright enemies produces more hard insight into what is really going on in the business than can ever be gleaned from a million press releases.

The snippets of hard fact information and deduction roll in and sooner or later fit together with info from other sources like a jigsaw. Acoustic Research — the firm now so used to staging exhibitions round Europe that they carry with them a treasure chest of odds and ends guaranteed to cope with any emergency, technical or human. Tandberg, willing to unplug a tape deck in the middle of a public demonstra-



Harrogate. Victorian accommodation but no dated ideas.

tion to cope with an audio emergency in the lecture theatre. An insight into how the Revox agency has oh so quietly changed from Hammond to Bauch. A clue to what may happen in the future now that Tannoy, JBL and Ortofon are all under the common ownership of Harman. A feeling that the Rank Organization seems always to be changing its management and moving its employees from one job to another in Whitehall fashion. The risk for any firm of staying too long with unchanged styling, which, although tried, tested and not actually needing improvement, inevitably fails to get review space because it is all taken up with new products from rival firms. And where else but at an exhibition would one learn that there is only one turntable in the world, the Leak 2001, that can operate without skating on a bouncy ballroom floor? KLH, in their Harrogate demonstration, made this discovery. But the Leak 2001, which was put on the market at far too high a price and never made money, is now defunct. And talking of KLH, it was interesting to hear as an aside that the Rolling Stones used a stack of twenty BGW 750-amps, rather than Crowns, at Knebworth. Last but by no means least is it perhaps significant that

one turntable manufacturer was demonstrating his new wares with the perspex dem prototype running in reverse?

What happens next?

By now you will have my point. Exhibitions are very much worthwhile for all concerned. But, as we have already established, Olympia must be a highly dubious starter for 1977, HEDA has become IDEA without any audio, and while some local exhibitions will of course be worth visiting, others will not. So for 1977 that leaves mainly Heathrow in the Spring and Harrogate in the Autumn. And who better to talk about their views on the future of exhibitions than the organisers of these exhibitions — Don Quillen and Trevor Horne, of Emberworth, from Heathrow and Stan Smith and Peter Hainsworth, from Harrogate. I spent a hectic couple of hours talking and listening to all four. Here's the background. Don Quillen is a colourful Australian, who to cut a long and equally colourful story short, first came to England almost by mistake, learned to cook while employed as a cook and learned the audio business while employed with Colin Hammond. He learned the exhibition business after he represented Hammond at a meeting of disgruntled manufacturers

revolting against the red tape of Sonex and looking for someone to organise an alternative for the following year. "You seem to have so many things to say about all this," they chorused to Quillen, "you organise it." He did. In so doing, he took on board Trevor Horne, a quiet man who seems quite content to let Quillen do all the talking. But without doubt, Horne contributes a great deal of private, sound sense in the business affairs of Emberworth, the company that Horne and Quillen run. My impression is that I wouldn't want to try and get one over on either of them.

Stan Smith and Peter Hainsworth run Exhibition Conference Services, and although neither is as quiet a partner as Horne, they make an equally contrasting couple. Stan Smith, once professional musician, still spare-time band-leader, owns American jazz star Chet Baker's old trumpet, and is understandably more than a little proud of the fact. So would I be. He also obviously has as much enthusiasm for music as hi-fi, which, when you take time off to remember the fast-being-forgotten fact that the main point of hi-fi is to reproduce music, is no bad thing. Peter Hainsworth is more

quietly and obviously businesslike, but again, I wouldn't want to tangle with either.

Our round table discussion almost got off to a bad start. It was scheduled for 10.00 a.m., the morning after a late-night party. I made no particular effort to spruce up and be on time — "They'll never all be there," I thought. But they were, all on time and decidedly fresh and spruce. Also, Stan Smith was decidedly unhappy about having been recently misquoted as saying that, with the demise of Olympia, "Harrogate was now the only show". It wasn't what he had said, and he was worrying about how it looked in print like a slur on Emberworth's Heathrow enterprises.

From the beginning ...

We had already been into the subject of how the whole business of audio exhibitions began. Donald Aldous, the night before, recalled how in the post-War years, at the Russell, Washington, and Waldorf Hotels in London, there had been a series of working demonstrations of new designs given by audio pioneers such as H. J. Leak, Donald Chave and Gilbert Briggs. A stage would be set up, the equipment plugged in and the demonstration given. At the end, the exhibitor's equipment would be moved off and away and replaced by that from another, and so on. Eventually someone, no one can quite remember who, had the clever idea of setting up their wares for silent demonstration in a side room. There they would chat to visitors until the big moment for a working demonstration came round. Then someone else had a similar idea, several hotel rooms round the demonstration area were booked, and that's how exhibitions were born. Next on the scene was entrepreneur Cyril Rex-Hassan, who has on occasions been heard to claim the distinction of having his ventures thrown out of more hotels than anyone else. It's no reflection on Rex-Hassan's organisation, simply a reflection on what a large exhibition does to a hotel. "It knocks hell out of it," says Hainsworth. "I remember one exhibition in a London hotel where they still had a utility carpet down — it was raining outside, and after a day of several thousand tramping, rainy feet, they tried to lift up the carpet to clean it. It fell to pieces." Hainsworth also remembers how the format of the Harrogate Exhibition has changed over the years. At first there were fashion shows and little fairground-like stalls in the lobbies. Then gradually the exhibitors started booking their own rooms. Visitors often wonder how it is that Harrogate exhibitors often seem to be in the same room year after year. The reason is simple. Once you have exhibited in a room at a Harrogate exhibition

(eg in the Majestic Hotel), you have a 21-day first option on that room for the next year. In this way, those who backed the exhibition in its early days still have first refusal on the best rooms.

Not surprisingly Quillen, Horne, Smith and Hainsworth are all agreed that there is a future for exhibitions — but also agree that there is no such thing as an ideal venue size, or style. At Heathrow, in the Spring of 1976, there were 1,658 registered trade visitors, 176 overseas buyers, 74 press (including 23 from overseas) and a total of 23,400 public visitors. Because ECS have not so far recorded their visitors like Emberworth, they can only take as a guideline the assumption that one in six people will buy a catalogue — this would put their visitor figures at around 30,000. Oddly enough, they doubt that advertising, on TV or radio, makes any difference. Neither Heathrow nor Harrogate could cope with the kind of numbers that normally troupe through Olympia.

"Can you imagine what would happen to a hotel like the Majestic if we had eighty thousand people through here?" asks Hainsworth.

This points up, better than anything, the basic problem — no one exhibition can answer all the needs of everyone, trade, press, and public alike. If the venue is big enough to provide comfortable access for as many members of the public as wish to turn up, it will present all the acoustic and cost problems familiar to Olympia exhibitors. As Don Quillen says, "There is a great deal of added expense in exhibiting at Olympia. You've got to build sound-proof booths and you will never realise the cost in terms of extra orders from the trade. Hotels are more cost-effective for the relatively short period of an exhibition — because there aren't building costs."

£2 per head

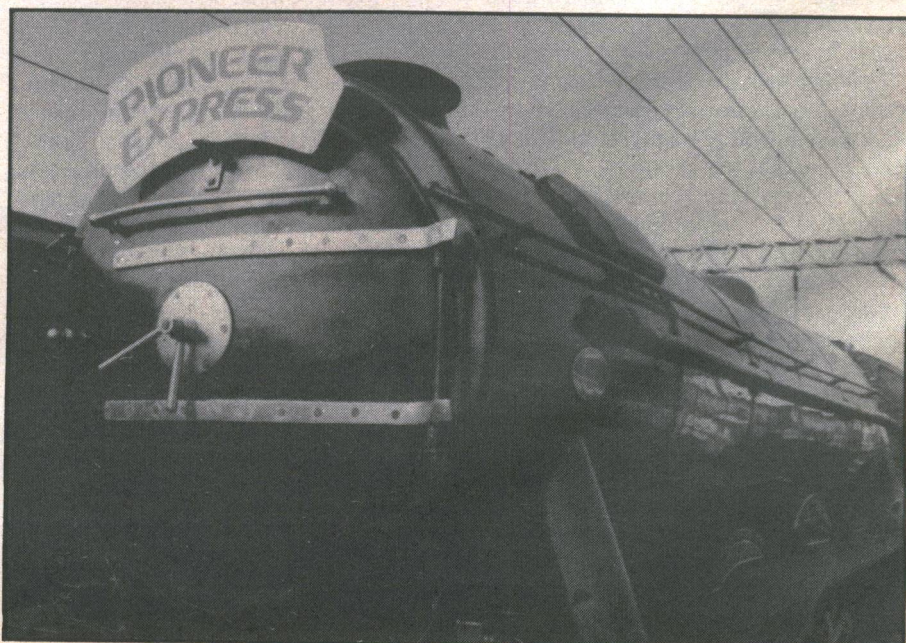
By coincidence, Peter Walker of Quad had only shortly before-hand told me that the total cost of his exhibiting at Olympia came to around £2 per person to whom a demonstration is given — in other words, it costs Quad, in floor space, booth building costs and company time, £2 hard cash each time someone sits in their booth for demonstration. The cost to Quad of exhibiting at a hotel, be it Harrogate or Heathrow, is considerably less. Both ECS and Emberworth believe that the cost to exhibitors at Heathrow and Harrogate (bearing in mind the duration of the exhibition) is similar. Don Quillen points out that the cost to a firm of booking a hotel room is only equivalent to about three full pages of magazine advertising.

But the press and trade find it hard to do useful work in the crowded situation of a hotel exhibition, under assault and siege from an enthusiastic public. This is of course why both Heathrow and Harrogate have so many trade and press days. But even this is fraught with disaster.

"I remember we once had the bright idea of making Sunday morning at Harrogate a trade-only time," recalls Hainsworth. "We found out the hard way, that the last thing the trade wants to do on a Sunday morning is visit an exhibition — you could have safely rolled a cannonball down the corridor." On the other hand, it seems that the trade are only too happy to come on a Sunday afternoon. It is little things like this that seasoned exhibition organisers learn by experience.

As Stan Smith says, "Everybody now seems to want to have a go at organising a show."

"By all means let them have a go," says Hainsworth, "provided that the show is of a reasonable calibre, not just ten



EXHIBITIONS

exhibitors and a slough of despond — that's the worst thing that can happen for everyone because the public will lose confidence in all exhibitions."

"What you need for a successful exhibition," says Stan Smith, "is a firm base of about thirty companies on whom you can absolutely rely — without the Sonys, JVCs, Pioneers, and so on of this world, there just isn't any show."

All parties agree: "We still get complaints, like, 'If this show is supposed to be representative of the audio industry, where are B & O?'"

All parties also agree that they have a stock answer: "You're asking the wrong person, here's the company's phone number — ask them why they're not here."

"There's no such thing as an audio industry, Quillen says, "it's a hybrid. Importers, manufacturers, agents, true hi-fi, musiccentres, and so on."

"You can have eighty companies and they will all have different marketing policies."

And you cannot dictate to anyone how they will exhibit — it is generally agreed.

Now, a lead-up to the 64,000 decibel question. No one disputes that Harrogate and Heathrow have a lot to offer. But neither is perfect. Neither is ideal. Harrogate is hardly on the doorstep for London, and Heathrow is awkward to reach and has far less spread of room size.

As Don Quillen says of the Heathrow hotels, "You've got the big conference rooms, and then you are straight into the bedrooms, because there is nothing else left or in between — at the Majestic ECS have more flexibility: all the rooms have high ceilings and you can get a crowd in without a ventilation problem. At Heath-

row the rooms are air-conditioned, but the conditioning isn't built to cope with the kind of crowds that pile in."

He's right, of course, but even at Harrogate some exhibitors (eg National Panasonic, Technics) import their own air conditioning. It's the kind of thing that you don't notice for its presence — more for its absence.

Would you run the Audio Fair?

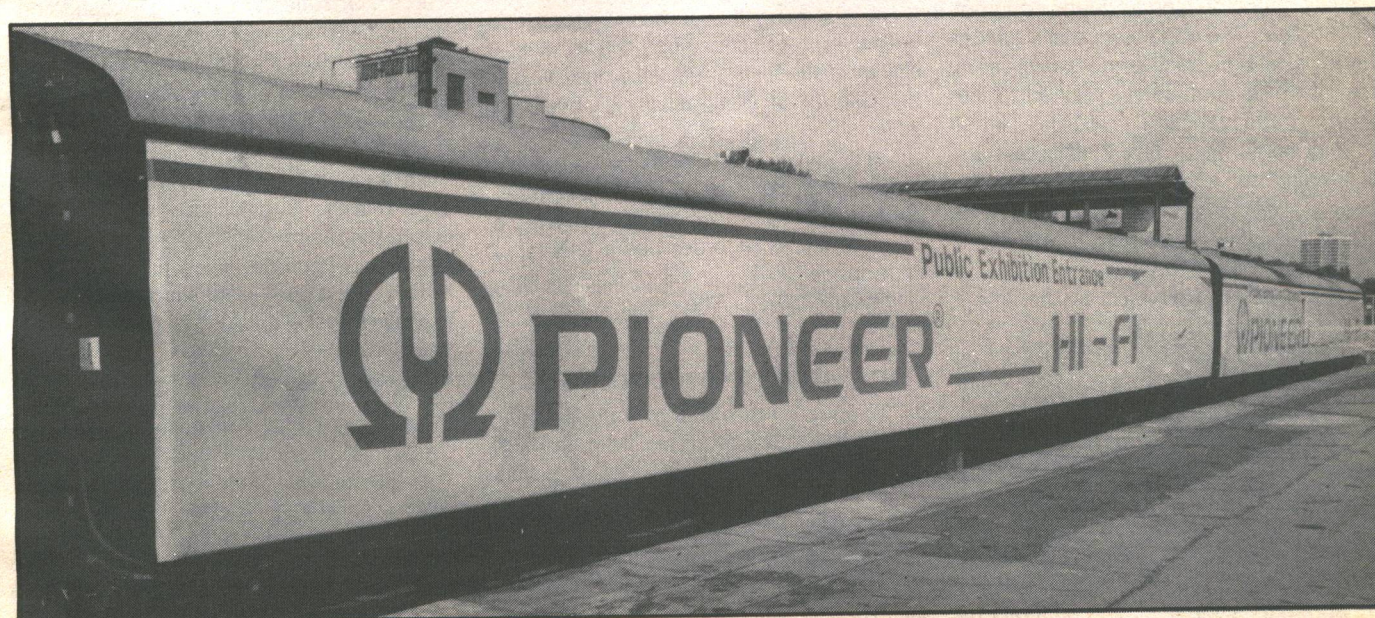
So obviously, and no one is really arguing, both Heathrow and Harrogate lack one thing that Olympia has — sheer size and facilities for the mass public at large. Now into that final question — would either ECS or Emberworth take on Olympia if it were offered to them on a plate? I asked this question, ignoring hypothetically the obvious, unspoken, unstated, but currently tacit acknowledgement by all parties that ECS operates mainly in the North and Emberworth in the South.

Peter Hainsworth gave a guarded "yes" to the possibility of an audio and hi-fi exhibition at Olympia. "But it would have to be just audio and hi-fi, not home entertainment," he added, "and there would have to be air-conditioned booths and we would want to have complete control — that way it could work, because it's in London but it would be very expensive". Stan Smith disagrees, with respect to his partner. "No," he says, "the venue is basically unsuitable and that's all there is to it."

Don Quillen also says "No". "I can categorically state that the cost of doing it properly is prohibitive to too many people for it to be a success." And Trevor Horne agrees: "There's insufficient support from insufficient members of the industry. It won't work," he says.

So there you have it. A massive vote of

no confidence in Olympia from those who ought to know. But should there be an audio exhibition in Central London? All say "yes" although none can agree on, or for that matter even suggest, a suitable site. For the time being, then, with the industry in its present, pretty depressed state, no confidence in Olympia and no magic answer for an alternative Central London site, the situation is clear. The Southern audio trade, press and interested public will very probably have to make the awkward pilgrimages up to Harrogate or out to Heathrow if they want to see more than is on display at their local showrooms. Probably Don Quillen best summed it up in an aside — "The only really ideal situation is for every company to go out into everyone's home, set up their equipment and demonstrate it there," he joked with some seriousness. That's really the crux of the problem. Audio and hi-fi is an essentially domestic business. Only public address equipment is intended to be used in a barn. In the 'good old days,' when Messrs Leak, Chave and Briggs demonstrated to a bunch of enthusiasts gathered around them at a London hotel, the demonstrations were still of domestic equipment on a domestic scale. Now Messrs Leak and Briggs have been absorbed by vast commercial entities (in their case, the Rank Organization), mass production techniques (especially from the East) have made vast quantities of high-powered equipment available at low cost, and the tight-knit bunch of London enthusiasts on pilgrimage to a small hotel has become an army of tens of thousands. So hi-fi, while still a domestic purchase, has become a multi-million-pound industry. And there ain't no such animal as an exhibition that brings both extremes onto the same level.



All abroad — a brand-new venue for Pioneer and ideas for the future?

BASICS

Matching with DIN

Based on the enquiries to our Advice Service, it is still evident that anxieties are caused by the DIN specification involved in connecting recorders to amps or receivers. Prospective purchasers study the amp DIN output specification and recorder DIN input specification and then . . . well, it seems they either take up tropical fish keeping or they seek Advice. It's got to be said that the employment of a high source impedance at the output of an amp fed into a lower impedance at the recorder is something of an engineering absurdity. True engineering principles are basically the opposite — low impedance out into a high impedance input! Little green men looking down from their space ship might convulse at the thought of spud mashing but high on their mickey list could be the DIN interconnection specification. But DIN is a fact, so here are some thoughts on how to live with it.

Some interconnecting facts

The process of leaving an amp at high impedance and feeding into a lower impedance straight away means a reduction in signal mV level by simple potential division. OK, so you merely amplify a little more in the recorder — but the pre-amp used for this will be in front of the record gain control, and if the gain control is used more than say 75% round then the pre-amp will add hiss to the signal. Looked at another way, this lops 10dB off the maximum sensitivity or increases the usable input figure by three. That is the first possibility.

The second concerns just how low the impedance of the recorder input is and whether the DIN lead capacitance will, as a result, affect the high frequency content in the signal. The capacitance of a typical DIN lead, let alone any longer leads users may make up themselves, added to the inherent capacitance of a recorder's input circuitry could mean that 20k Ω emerges as the limit for recorder DIN input impedances if HF loss is not to happen. Put crudely, what's the point struggling to get a 15kHz response in a recorder if the signal is already 3dB down by the time it gets to the first transistor!

A third aspect concerns the level of the signal out from the amp. This signal could be too high and actually overload the pre-amp in front of the record gain control, or whilst not actually doing this it could mean the record gain control is barely off its stop and thus control is difficult and fading in and out impossible. An input attenuator as on the JVC and Sony battery portables is ideal in overcoming both the problems. Additionally the provision of

the preset level controls and the separate master record gain control in the JVC is a fitting I would desire in every recorder.

Without these provisions one could be trying to control a signal at 10% to 20% up on the record gain control. These points are around 40dB down on maximum gain position.

Hairy situation

When one looks over the varied figures for an amp DIN output impedances and output levels, recorder DIN input impedances, maximum input sensitivities and overload levels, no wonder the choice of partners looks so hairy and advice is sought.

Phono sockets are an alternative!

Before detailing how to spot a DIN inconsistency, let's take a quick look at the alternative often provided. Phono sockets are frequently fitted to the amp and their output impedance is usually well below 10k Ω . This allows sensible lead lengths with signal levels of around 400mV. How does this suit typical recorder phono inputs? These are often of 100k Ω input impedance — so no loading problems. Also these have 100mV or better sensitivity at full record gain control setting — so by the time the control is brought back half way all is well. However, if the sensible thing has been done, by-passing the mic/DIN pre-amp, there's no danger of increasing the hiss at high record control settings. Often these phono inputs have overload points up near 10V — yes volts. But back to DIN.

Will they connect together?

I am assuming the amp and recorder's output/input specifications are available. Knowing these figures, can one predict the degree of compatibility? Obviously, yes!

Let's have some typical figures to work on. An amplifier has a DIN output impedance of 76k Ω and 400mV is available open circuit. A recorder has a DIN input impedance of 4k Ω and a maximum sensitivity of 330 μ V. The input will clip at 38mV.

Compatibility procedure

- 1) To allow for the reduced input sensitivity needed to keep the record gain back from maximum (otherwise pre-amp hiss could obtrude) — multiply sensitivity figure by 3. Three hundred and thirty μ V times 3 equals 990 μ V (but round off to 1mV).
- 2) To allow for the attenuation of signal brought about by 76k Ω source being con-

nected to a 4k Ω input, add the two figures together and divide by the recorder input impedance. Seventy-sixk Ω + 4k Ω equals 80k Ω . Divide by 4k Ω ; the answer is 20. The 400mV open circuit voltage is thus reduced by 1/20th. Four hundred divided by 20 equals twenty mV into the recorder.

3) Evaluate. The record gain control can easily be brought back to accommodate the 20mV. Overload would be at 38mV, not quite 6dB away. Bringing the control back means it is near to the 30% up mark. It is borderline, but it is usable. Being near the overload point, there's no danger of hiss problems, and the recorder input impedance is low enough to be clear of HF loss problems. So the two items can be used with DIN interconnection.

Pairing two— problems?

A receiver has a DIN output impedance of 90k Ω and an open circuit output level of 30mV. The recorder to be connected is of 10k Ω DIN input impedance with a maximum sensitivity of 19mV. Overload is, however, greater than 10V!

- 1) To avoid actual hiss worsening, the usable input sensitivity becomes $19 \times 3 = 57$ mV.
- 2) Signal attenuation factor is $90 + 110 = 100$ divided by 10 = 10. So the 300mV becomes 30mV into the recorder.
- 3) Evaluation is easy. The 30mV means going into the hiss region, so this is an unsatisfactory match. The recorder in question was the subject of an advice query on this aspect.

Summary

I'm dying to disclose that this article narrowly escaped being titled "DIN is a Farce". On reflection, having investigated the problem with more examples than just the two quoted, the situation is not as bad as my prejudice caused me to fear! The equipment specification figures are unnecessarily varied, however.

Let's close on a piece of homework for next month. Check the pairing below using the Compatibility Procedure and see if your findings are confirmed in next month's edition — is everything what it seems at first glance?

Homework

Consider a receiver and recorder from the same manufacturer. Receiver: DIN O/P impedance 36k Ω with open circuit signal level of 430mV. Recorder: DIN I/P impedance is 44k Ω with a maximum sensitivity of 7.5mV. The input clips at 1.6V. Are they compatible?

By Mick Skeet

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NORTHERN ENGLAND: Barnsley, Birkenhead, Blackburn, Bolton, Bradford, Bridlington, Burnley, Darlington, Dewsbury, Doncaster, Driffield, Goole, Grimsby, Halifax, Horsforth, Huddersfield, Hull, Jarrow, Leeds, Liverpool, Newcastle, Pontefract, Preston, Rochdale, Sheffield, Stockport, Stockton, Sunderland, Wakefield, Wigan, York.

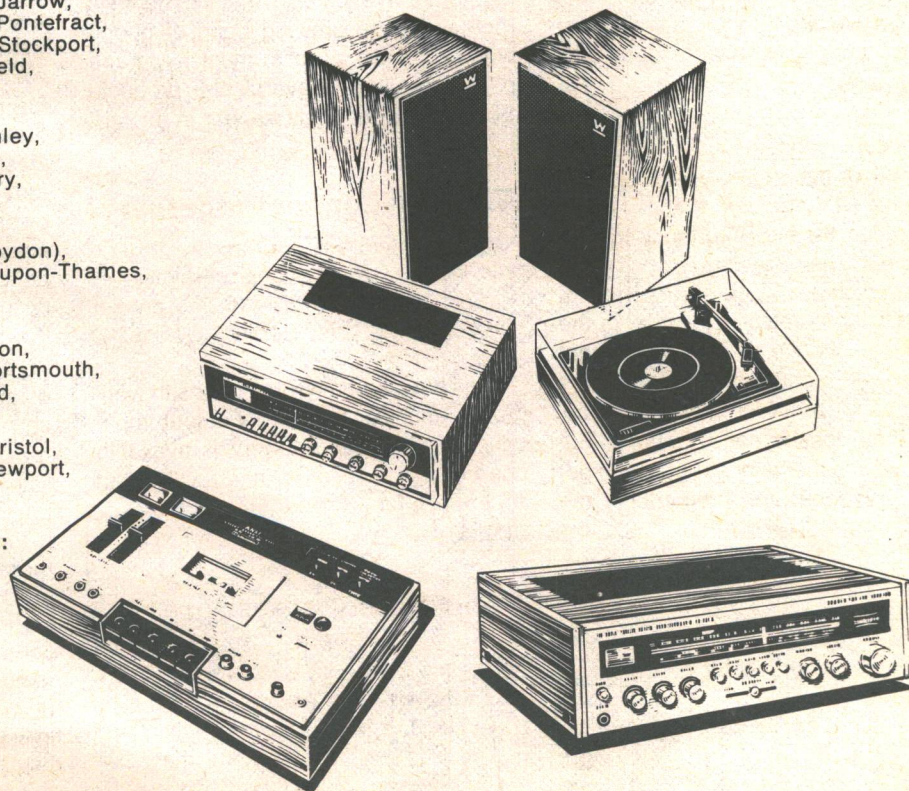
MIDLANDS: Birmingham, Hanley, Leicester, Mansfield, Norwich, Nottingham/Derby, Shrewsbury, Willenhall, Wolverhampton.

LONDON: Hackbridge (Nr. Croydon), Hayes (Middlesex), Kingston-upon-Thames, Dagenham, Potters Bar.

SOUTH: Bournemouth, Brighton, Eastleigh, Ipswich, Oxford, Portsmouth, Reading, Rochester, Southend.

WALES AND SOUTH WEST: Bristol, Cardiff, Exeter, Gloucester, Newport, Plymouth, Torquay.

ECLIPSE DISCOUNT STORES: Bristol, Cardiff, Dudley, Edinburgh, Glasgow, Harrogate, Manchester, Swansea, Willenhall.



Forget the hi-fi

A new approach to
assessing sound from hi-fi
is discussed by
Peter Comeau in this new
series

'Subjectivity', 'musicality' and 'measurement' are topical and increasingly controversial terms. They sum up the various ways of assessing current hi-fi equipment, be it amplification or reproduction gear. Unfortunately they are not yet harmonious — there are people who can recognise nothing but a factual, scientific breakdown of measurements. On the other hand protagonists of 'musicality' tend to dismiss objective measurements as accurate, but irrelevant. Others steer a middle course and attempt to find a compromise 'image' between subjective

panel comments (for statistical accuracy), a few measurements to check basic functioning and individual comments from persons convinced of special characteristics.

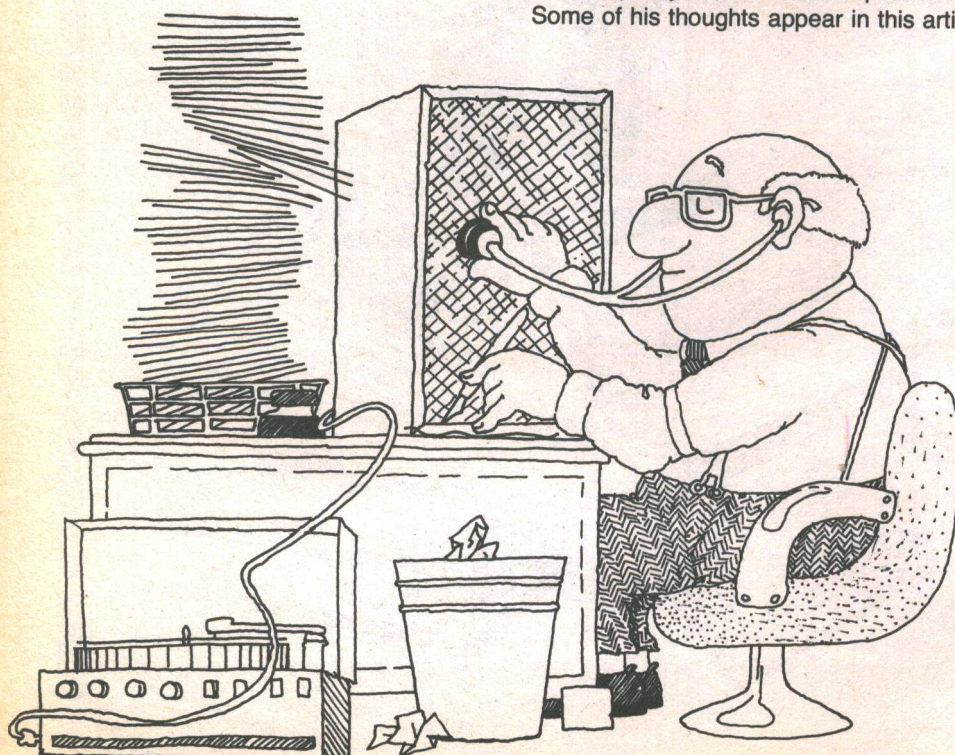
All approaches probably have their place, and during the next few months we aim to place on paper views from each school of thought. One person who can lucidly put the case for 'musicality' is Peter J. Comeau, who is an audio consultant in Plymouth. We believe that he honestly represents the growing band of people who recognise a basic musically transparent quality in several hi-fi products. Some of his thoughts appear in this arti-

cle, which we hope he will follow up in greater detail next month *et seq.*

A DEFINITION FOR MUSICALITY

In the past few months you may have seen references in various hi-fi publications to equipment that is described as 'musical'. You may have wondered why this equipment was more highly regarded than other products of the same rank which have previously enjoyed favourable reviews. Alternatively you may have thought this term meant nothing at all and was just another piece of hi-fi jargon. Indeed it is a term which is often abused by those who are not clear about its meaning, but one can hardly blame them when nobody has yet defined it. The problem facing anyone who tries to do this is that the concept is based on subjective listening experiences and cannot be given a set of absolute values. This is why I have called this a guide, because you can only really understand what 'musicality' is by listening yourself; I am merely going to try to clarify the meaning of the term.

From the birth of high fidelity equipment there have been those who have measured quality and those who have listened for it. In early days, before transistors were even thought of, it was relatively easy to divide equipment into that which distorted and that which didn't, the latter items being very few in number and correspondingly easy to choose from. Unfortunately mass production soon got under way with the introduction of printed circuit board technology and, before long, the first-time buyer was faced with a plethora



'there have been those who have measured quality ...'

of products all claiming in their adverts to be 'it'. The crunch came when mail order buying started to take over the market and more and more people began to rely on magazine test reports instead of visiting their local dealers and listening for themselves. Lacking any aural standards of quality, reviewers largely relied on technical specifications to produce an objective report. If all speakers sound different, how do you say whether one is better than another if you haven't a perfect reference to judge it by? The usual answer was to take frequency responses and polar plots and try and work it out from those. The problem here, as researchers investigating the workings of the human ear know well, is that we cannot accurately measure everything the ear hears. Group listening tests have shown that we should hardly rely on technical measurements at all; it came as quite a shock to many people that two amplifiers whose specifications are identical can sound totally different. Thus one just has to use subjective terms in test reports, terms such as 'accuracy' and 'musical'.

I second this emotion

Accuracy of sound can be readily defined — 'that which sounds like the real thing' — and live versus recorded tests using a large listening group can indicate equipment that is accurate. But, as *Hi-Fi for Pleasure's* recent test of 30 loudspeakers showed, accuracy is not the be all and end all when it comes to listening to music. As a late 'Sixties advertisement once said, 'Take a speaker and add a resonance at 3kHz and it will make a trumpet sound like the real thing', but what does it do to an oboe! My experiments, and those of others researching in the same field, have shown that equipment does not have to be accurate to be musical, showing that 'musicality' should be regarded as a separate entity. Anyway, let me try a definition:

'A sound reproducing system can be described as musical if it conveys to the listener all the emotional impact of the music.'

Now, at first sight it seems that I am describing an impressive system, but notice that I said 'emotional', not 'aural', impact. For the listener to be able to 'feel' the music and experience the same emotional peaks as he would in a concert hall, he must be able to concentrate on it WITHOUT BEING AWARE THAT THERE IS A HI-FI SYSTEM IN THE WAY. This is just the opposite of an impressive sound; what we don't want to be able to do is hear the equipment — just the music.

But surely, you may ask, listening to the equipment IS hearing the music? Not

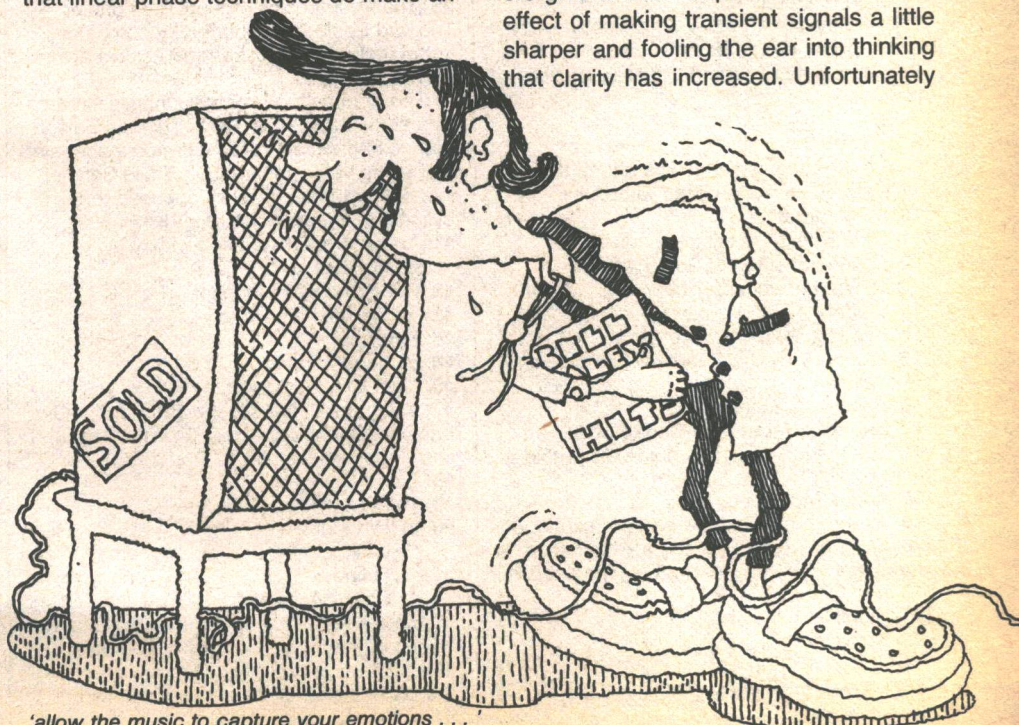
quite. Let us take, for example, a record player which produces a lot of distortion. We will still be able to hear the music, but all the time it will be accompanied by the nasty sound which the electronics are producing, distracting us from the music. All hi-fi equipment distorts in some way or other and can be extremely distracting.

Environmental implant

So what do we look for in a musical system? Basically, anything that helps us to forget aurally that the system is there. Accuracy helps, but it plays only a small part. The acoustics in the Albert Hall do not give the concert goer as accurate an impression of the sound of instruments as a top grade hi-fi system, but if he closes his eyes he knows he is listening to an orchestra. Let him close his eyes in his living room and he will know that the music is coming from a hi-fi system — why? One of the differences is the magnificent ambience one gets in a concert hall — the size and power of the sound image that the brain perceives cannot be reproduced satisfactorily in a small room. Quadraphonic systems try, but after listening to those currently available I still think that all they do is make one aware that four speakers are producing the sound instead of two. It has been left to loudspeaker development to enable the original ambience to be reproduced satisfactorily. The phenomenon of special depth and openness has recently come to the fore because of the rash of 'Linear Phase' or 'Time Delay Corrected' loudspeakers that have appeared. Not all of these designs have been successful. Whilst there is no conclusive evidence that linear phase techniques do make an

audible difference, some of these speakers such as the Dahlquist DQ10 and Leak 3000 range have shown the ability to project the stereo image behind and above in such a way that they themselves seem to have very little to do with the sound. Low colouration is also necessary for this effect to be fully convincing so that one's attention is not drawn to the speakers as sound-producing components themselves. I must also stress that other components of the system play a large part in reproducing this three dimensional spaciousness. Of course special depth has to be recorded on the record in the first place. Best results are obtained not by using close miking techniques but by utilising directional microphones to cover the sound stage with the occasional spot stereo mic. to highlight soloists. The latest EMI SQ releases can excel in this respect, probably because the recording engineers have concentrated on capturing the natural ambience. As for revealing this depth on the record, moving coil cartridges have given the best results. I have even found that all direct drive turntable units seem to destroy it.

If you are going to allow the music to capture your emotions, you will find that smoothness of sound is terribly important. Any peaks or troughs throughout the frequency range, or any nasty resonances, will show themselves up immediately. I have already mentioned colouration in speakers, but one must also beware of it in amplifiers. Transparency is what we are looking for, though some designers get up to some psycho-acoustic tricks to fake this. Of particular interest is the 'biting' sound that many Japanese manufacturers give to their amplifiers. This has the effect of making transient signals a little sharper and fooling the ear into thinking that clarity has increased. Unfortunately



'allow the music to capture your emotions ...'

the resultant by-product of this technique is to make the overall sound 'hard' so that violins sound as though they have steel strings. This hardness is an added colouration — listening experiences indicate that it is permissible to take away from the sound, ie valve amplifiers tend to draw a slight veil over detail, but one must not add to it. Real clarity begins when you start to hear details on your favourite records that you did not perceive before. You will only be aware of these details if you can relax and let your brain assimilate all the information the ear is feeding to it. A 'bitingly clear' sound will put your teeth on edge rather than help you relax and listen.

The greatest advantage to using musicality as a judge of hi-fi systems is that human emotions are difficult to fool. It is very easy to be impressed by a speaker on first hearing only to find out after living with it for some weeks that its very impressiveness is getting on your nerves. In that way the ear may be fooled, but you will find that emotions are not so gullible. I personally use the second movement of

the Shostakovich 2nd Piano Concerto on ASD 3081, a very romantic slow movement which is guaranteed to give me a tingle up the spine on a musical system. This is really the sort of effect you should be looking for; use a favourite record which you find emotional and listen until you find a system on which the music transports you to greater heights than before. What one could really do with is a 'tingle' meter, but if you start getting involved with the music and it brings tears to your eyes then you have a pretty convincing result. Another peculiar effect is present on ASD 2989 where the City of Birmingham S.O. plays Satie's Gymnopédies. These are very short pieces, though on a musical system the rhythm of playing actually seems to slow down, so that these orchestrated melodies seem to take up half the side of the record!

Of course one should also take accuracy into account when choosing hi-fi equipment. At the moment it seems the two qualities are converging upon different lines, and eventually we will end up with products which are both very accu-

rate and supremely musical. We are a long way from that day, though. At the moment there are differences between the real and reproduced, but it is possible to come to terms with them and they need not intrude upon our enjoyment of music.

I have spoken in very subjective terms, and you may think that I am preaching the same advice that magazines usually give to queries on loudspeakers, ie, go and listen and find what suits you best. It may therefore come as a surprise that I have heard from others scattered around the country who have come to the same conclusions with regard to certain pieces of equipment, so I can only conclude that the possibility is great that the subjective effects will be the same for you. One strong piece of evidence that everyone can see is the fast-rising prices of some secondhand valve amplifiers. It is not just because of their value as antiques, I can assure you! Finally I hope I have sparked off some discussion amongst hi-fi enthusiasts that is not of a technical nature for a change. After all, is hi-fi about specifications — or is it about music?

ANSWERS

Well, it wasn't as bad as all that, was it? Who threw that brick? Score 1 mark for each correct answer except where indicated — but lose your entire score if you argue with any of the answers printed here! Please swear quietly!

- 1 Chromium dioxide.
- 2 Lecson.
- 3 Not, as some unkind soul suggest, Awful Bass Rubbish. Auxiliary Bass Radiator is correct, but score a mark if your answer was more imaginative.
- 4 Computers are used in the mix-down stage when the 16 or 24-track master is reduced to stereo.
- 5 b) 24 inches. (It does very slightly, but this is generally a safe distance.)
- 6 Gilbert Briggs, 'Grand Old Man' of British hi-fi.
- 7 EMI.
- 8 b) £100,000.
- 9 The Wharfedale DC-9 was one of the first 'hi-fi' stereo cassette decks with Dolby.
- 10 b) Moderato.
- 11 Field Effect Transistor.
- 12 Soundcraftsmen of Santa Ana, California, the equaliser people.
- 13 Studer.
- 14 Pye Records.
- 15 Frederick Delius — remember the Ken Russell film?
- 16 Record cleaners.
- 17 Badische Anilin — & Soda-Fabrik. But score a mark if you were anywhere within a million miles!
- 18 Angus McKenzie.
- 19 All three manufacture ceramic cartridges.
- 20 a) 1 amp OR b) 3 amps — but score no marks if any of **your** hi-fi equipment has 13 amp fuses.
- 21 Sheffield Labs.
- 22 Kenwood.
- 23 c) 100-150 (!)
- 24 London and Birmingham.
- 25 Hungary.

- 26 b) pushed into a corner.
 - 27 Aerial rotators.
 - 28 Kent Engineering Foundry.
 - 29 'Decrescendo' or 'diminuendo'.
 - 30 a) a continuous power rating.
 - 31 'Bias' and 'bias compensation'.
 - 32 Matrix H, used for a number of broadcasts from the 1976 Proms concerts.
 - 33 Root Mean Square.
 - 34 Yes, J S Bach did go blind shortly before his death in 1750.
 - 35 Shure.
 - 36 Steyning Mechanical Engineering.
 - 37 Harrogate.
 - 38 September.
 - 39 The Audiotronics group of companies — Trio and Eagle are imported by companies in the group, and Quasar and Laskys are part of the group.
 - 40 The gramophone record! Charles Cross conceived the idea in 1877, Thomas Edison produced the first practical gramophone later that same year, and in 1888 Emile Berliner introduced the first flat, as opposed to cylindrical gramophone records.
 - 41 An echo machine used widely by recording studios.
 - 42 Reflex Acoustic Monitor.
 - 43 a) 1/5 mile a second.
 - 45 Blumlein.
 - 46 c) heart-shaped.
 - 46 Light Emitting Diode.
 - 47 They are all the sites of BBC VHF radio transmitting stations! Lose 5 points if you answered, 'The letters L, O and R'!
 - 48 True!
 - 49 The Eustachian Tube.
 - 50 a) Wharfedale e) Celestion
b) Leak f) Jordan Watts
c) Tannoy g) Tannoy again!
d) Castle Acoustics h) Altec Lansing
- (Alright — I do know that the Leak speaker wasn't named after the town of Sandwich. The name was actually chosen to describe the construction of the speaker's bass unit.)
- 51 a) Transcriptors Vesigial

- b) SME 3009 series II improved
- c) Keith Monks (Audio) Ltd M9BA Mk.3 (improved)
- d) Bib Groov-Kleen!

Check your HI-FI IQ

Score: Over 50 — You're a real hi-fi whizz-kid, more commonly called a 'know-it-all'! You're probably the kind of person who pops up at hi-fi shows and asks embarrassing questions, and who writes to Editors correcting contributors' mistakes. We 'professionals' have got no time for your sort at all...

Score: 40-50 — Your obviously take your hi-fi pretty seriously, but ask yourself this: 'Am I hell to live with?' Better still, ask your wife or girlfriend! If you don't have a wife or girlfriend, that only proves my point.

Score: 30-39 — Getting better. You're probably the sort who prefers a night with Hi Fi for Pleasure to getting blind drunk down the local and fighting over who won the FA cup in 1957 — but we won't hold that against you.

Score: 20-29 — This is more like it. There's almost certainly an opening for you in hi-fi advertising.

Score: 10-19 — There's a fair chance you work in the hi-fi industry already, but from the looks of things you've been on too many Technical Training Courses.

Score: 1-9 — I don't want to raise your hopes unduly — but if you were to drop a letter to The Publisher, Hi Fi for Pleasure, I hear they may be looking for a successor to the present Editor...

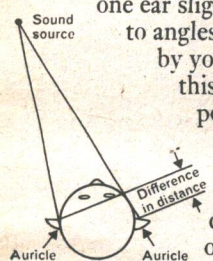
Score: 0 — Hello, CAN ... YOU ... HEAR ... ME?

Hope you enjoyed the quiz, the season's greetings to all my friends in the hi-fi industry (it wasn't **such** a bad year, was it?) and finally a very happy Christmas and New Year to Pleasure readers everywhere.

Keep it up in '77 — we need the money!

Until now...only quadrophonic gave you 360° of sound.

These are Binaural Headphones by JVC. They're amazing and totally unlike any headphones you've ever known, because they record and play back 360° of full surround sound using your existing 2 channel system. They're Binaural. And Binaural means this: you use both ears to hear. As you listen, sound enters one ear slightly later than the other, due



to angles of incidence and diffraction by your head (see the diagram). It's this that gives you a sound perspective. You're capable of picking up any sound from 360°, not just in front, at the side or behind. By technically duplicating this 'perspective' of both ears in the headphones, then adding sensitive

microphones, we're able to bring you headphones which will actually record and play back a full 360° of balanced sound (until now, only surround sound gave you that) using your 2 channel system.

Astonishing?

It's even more incredible when you listen to the playback. The sound feels 'outside' not 'inside' your head like ordinary 'phones. And you can even leave them to record on their own by placing them on their dummy head stand. So see your JVC Stockist tomorrow and try our Binaural Headphones.

Ask him for the headphone/microphone that brings you "Another Step Closer to Reality".

Available under £50.00. inc. VAT.

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Audio T-Test Audio T-Test Audio T-Test Audio T-Test



Once in a while a new imported Hi-Fi product appears bearing the name of a well known British company. This is the case with the ET1000 from Monitor Audio.

Direct drive, end of record lift off, and electronic speed control are some of the facilities found on this new turntable.

With the attractive 'slim look' plinth available in teak, walnut and black oak the ET1000 is available from stock with or without the SME arm.

Phone for details, demonstration and prices. Remember, demonstrations are by appointment during the week — book by phone now to avoid disappointment.

Audio T

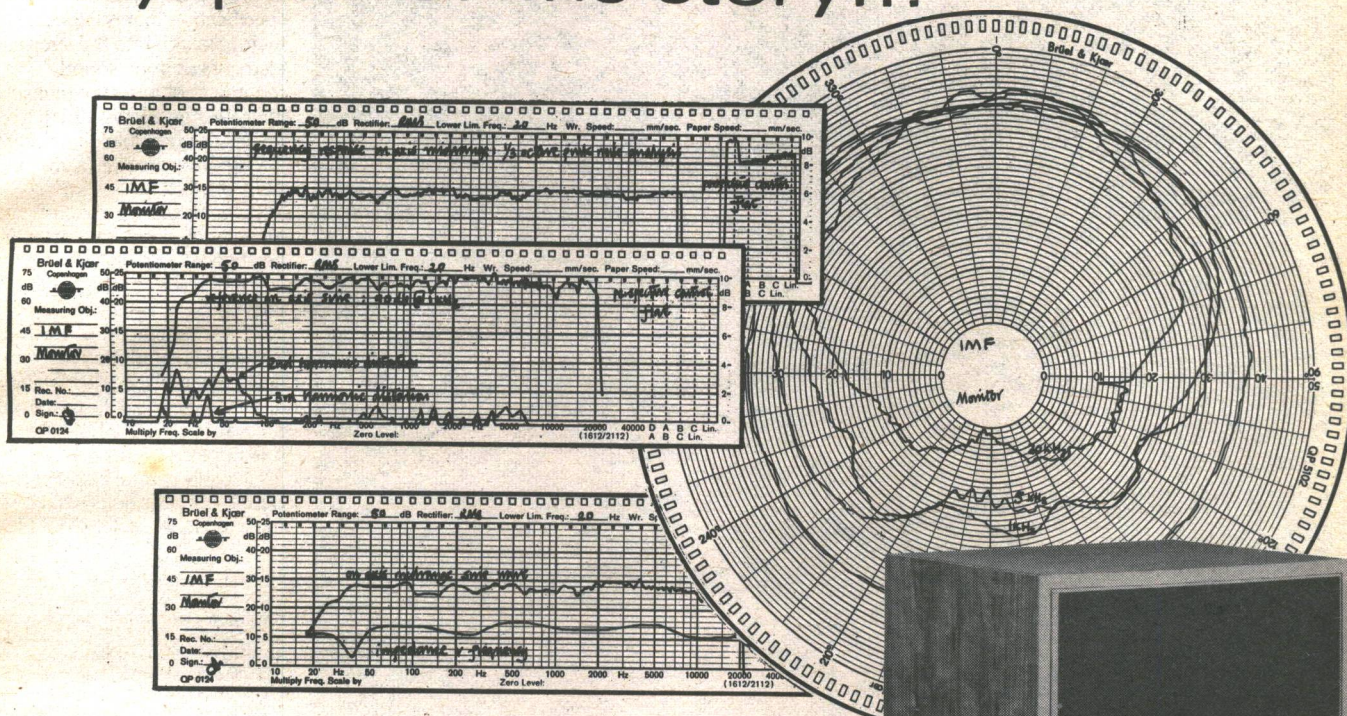
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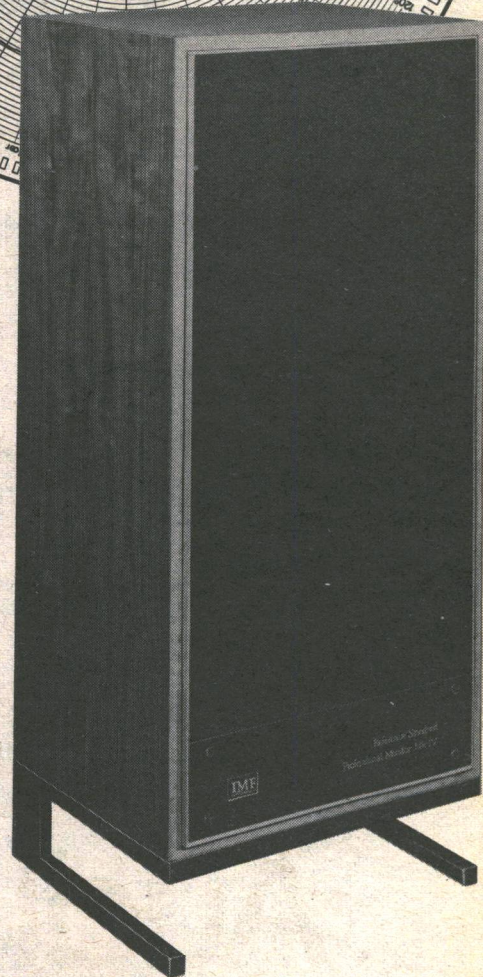
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only part of the story...



Good loudspeakers test well but measurement alone cannot define total performance.

Listening to the IMF Monitor speakers is an experience which more than substantiates published laboratory assessments.



monitor loudspeakers

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Ultimate Fidelity deserves Ultimate Design

Few people would argue with the fact that LUX High Fidelity is Ultimate Fidelity and that LUX engineers have reached the highest point of technical perfection that today's technology allows. Not only have they achieved the high technical specification that is expected of them, their research into the subjective elements of good sound, regardless of what the measurements indicate, has allowed them to achieve results not possible a few years ago. Today these are the "norm" for a LUX product.

This ultimate sound technology deserves a matching aesthetic design philosophy, and one can easily see to what a high degree this has been achieved with LUX's 'Top Set' as illustrated. Each individual feature has been carefully designed to blend with the general appearance and is thus not only pleasant to the eye but highly functional.

This careful blend of Science, Sound and Design is what goes to make up LUX ULTIMATE FIDELITY.

C1000 Pre-amplifier

This unit is packed with useful facilities which only a full brochure can adequately describe, and its technical specifications are 'state of the art'. Intermodulation distortion is 0.007% at 2.5v from 20Hz to 20,000Hz. Phono input overload is more than 400mV at 1000Hz and 3.5v at 20,000Hz. High & low filters, turnover frequency selector, touch-mute switch, speaker system switching, input level controls, and dubbing are just a few of the available facilities.

Power Amplifier

Three power amplifiers M2000, M4000 and M6000 are available at 120, 180 and 300 watts per channel respectively, into 8 ohms, continuously driven from 20 to 20,000Hz at no more than 0.05% total harmonic distortion. The unit shown is the M4000. All these units have both VU meters and LED peak level indication. Four protection circuits are able to sense DC drift, power transistor failure, abnormal high temperature, and excess current.

T110 FM/MPX Tuner

The tuner has a useable IHF sensitivity of 1.6µV and stereo separation at 1000Hz is 48dB. Its super slim design has several unusual features including a dial scale placed inside the large tuning and signal strength meter.

Full technical details on this and the other Lux models depicted can be obtained on request from Sole UK Distributors: Howland-West Ltd., 3-5 Eden Grove, London N7 8EQ.
Tel: 01-609 0293/4/5.



Lux C1000 preamplifier

CHRIS ROGERS



During the past decade power amplifiers have received widespread attention and have been the subject of deep research and development. I have noticed however, that with few exceptions, preamplifiers have tended to be ignored. One company not guilty is Lux — who produce the Luxman C1000.

The Lux Corporation of Japan have always made a sincere attempt to produce hi-fi equipment which is a cut above oriental competition. This they have achieved by way of better performance and a high standard of manufacture and finish. This, predictably, is reflected in the price, which also has been a shade higher than average.

At £500 the C1000 is expensive — no, very expensive — and it is the purpose of this exercise to find out whether or not it is possible to justify this expense on a pre-amp alone.

A brief visual inspection of the C1000

shows that it is beautifully made. Such embellishments as engraved legending, not just silk screen printing, and the fact that the front panel is a precisely machined two part item, not merely a single stamping, proves the point.

In front

The controls, from the left, start with a large rotary input selector, which has positions for Aux 1, Tuner, Phono 1, Phono 2, and Aux 2. Beneath this is a control called a 'linear equalizer', which functions only on disc input and serves to alter the RIAA equalisation slightly. It offers two steps of +1dB and two of -1dB. This is achieved by altering the negative feedback equalisation, the effects of which can be seen in the appropriate graph. I have, in the past criticised this control on other Lux products as being of little use, but in the other models the control is a passive tone con-

trol. In the case of the C1000 the linear equalizer is a very desirable feature achieving the *slight correction* sadly found so necessary on many records.

Moving to the right there are four tone controls. The upper pair are bass and treble controls, beneath which are knobs which offer three different frequency turn-over points; 150, 300 and 600Hz for bass, and 1.5, 3 and 6kHz for the treble.

In the centre there are seven, three-position lever switches, the first one of which gives tone defeat and tone plus bass boost. The characteristic of this is shown along with the filter characteristics, provided by the next two switches.

The following two controls are for mode switching, the first offering either left or right input to both outputs and the second offering reverse stereo and mono.

Finally there are two switches which facilitate monitoring from two tape machines and dubbing either way.

TEST BENCH

Beneath the switches are two screwdriver adjusted pre-set controls. One allows the input impedance of phono 1 to be varied from 30 to 100kohms, whilst the other gives $\pm 5\text{dB}$ sensitivity deviation on both phono 1 and 2.

Continuing to the right there is a dual concentric control, the outer part of which is the balance control, whilst the inner section is a 20dB attenuator. This reduces the output level, permitting fuller use of the volume control. Above this is a pilot light to show that the C1000 is on; the light flashes for a few seconds when the unit is initially switched on until the internal time

muting circuit switches over. This is to prevent switch-on thumps.

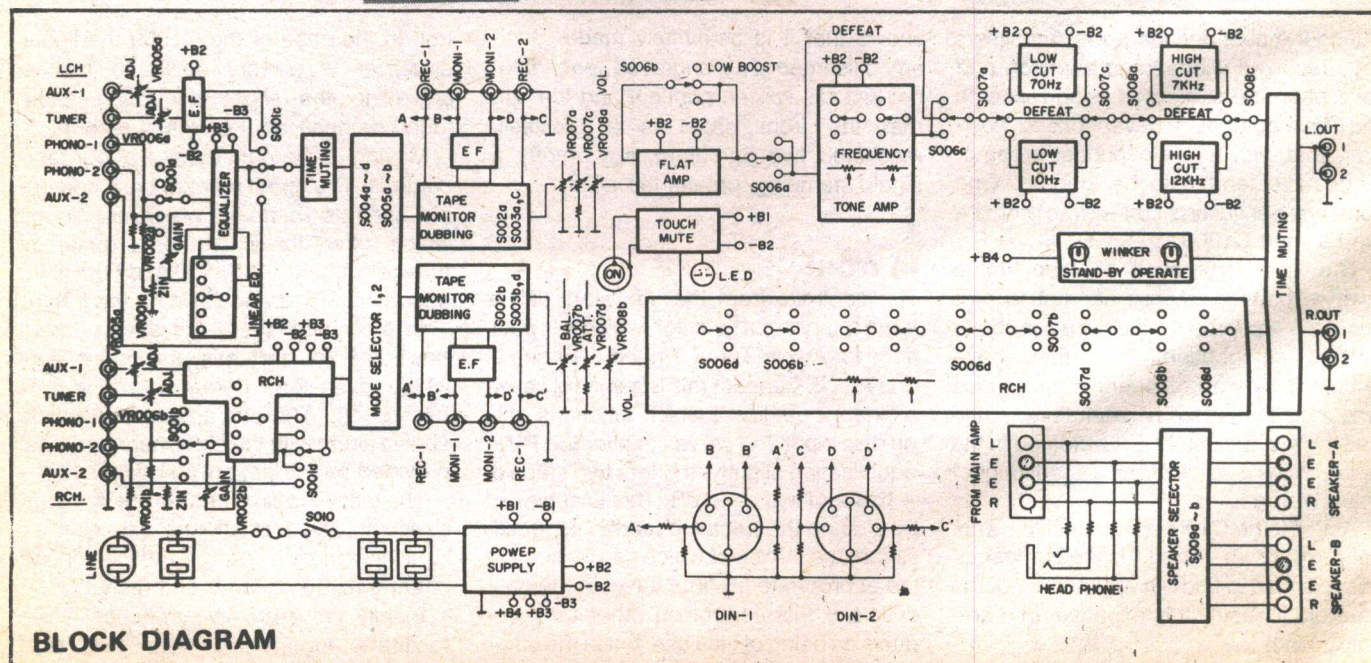
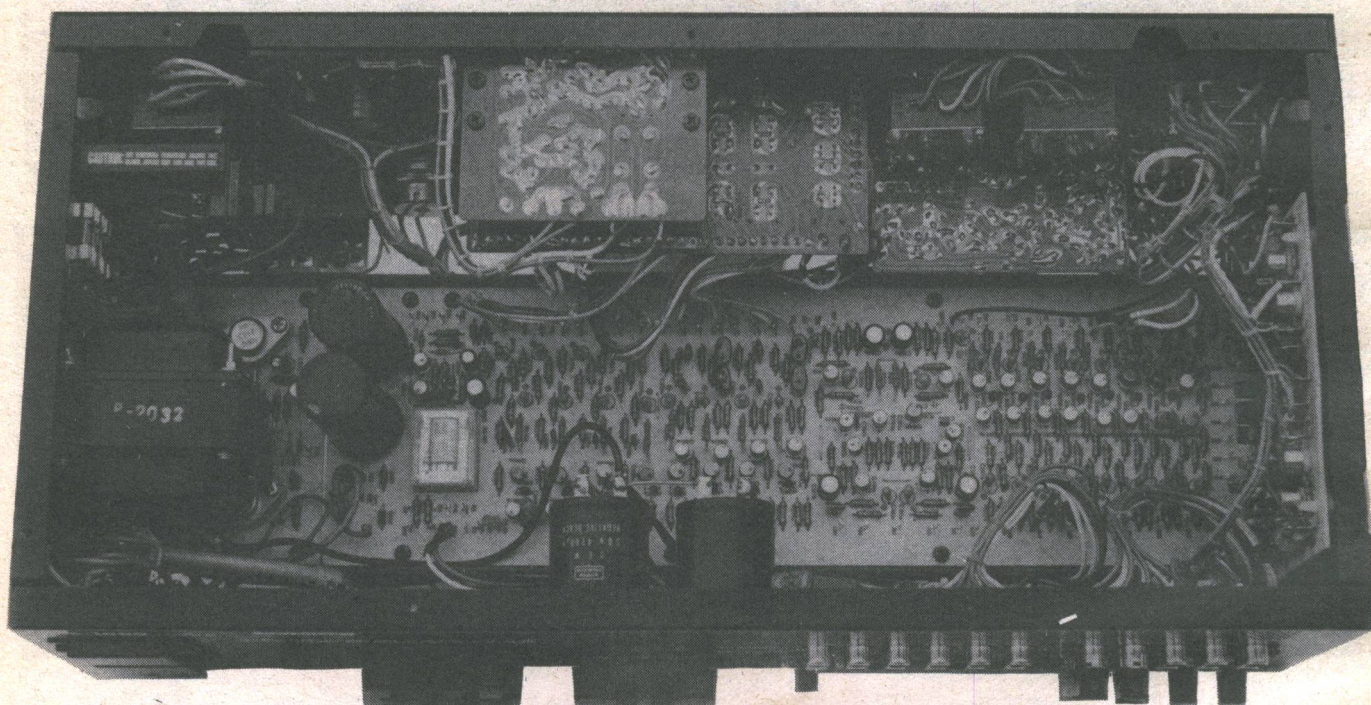
To the right of the balance/attenuator control is a small circle. This is a mute control which when touched reduces the output by 16dB. The attenuation is cancelled by touching the volume control. Beneath this are two small push buttons which connect speakers A or B. These are followed by the power on/off push switch and headphone socket.

Finally at the top right is a large volume control, which has 22 click positions. Above this control is a small red pilot light which indicates when the touch mute is on.

Behind

A look round the back shows that all signal terminations are phono type, with DIN duplication for both tape inputs. There are adjustable level controls for tuner and aux 1 inputs beneath the phono sockets, plus a switch to cancel the touch mute control and a large ground terminal. There are three pairs of sprung speaker terminals, two for speaker A and B, and one pair for input from a power amplifier.

To the left are three American flat, two pin AC outlets, two switched and one unswitched. Unfortunately these sockets



BLOCK DIAGRAM

The preamplifier certainly is complex, with amplifiers all over the place. Study of this may explain some controls.

have covers screwed over them to prohibit their use. This is to conform to the new BSI safety standards. Whilst it is reassuring to have a safety standard, it is a great shame not to have this asset. I hope that in the near future manufacturers can find a type of AC outlet socket which satisfies the BSI standard.

And Inside . . .

An inspection under the covers of the C1000 shows a level of complexity in excess of many receivers and a very high standard of electronic construction. Practically all the components are mounted on printed circuit boards with the minimum of wiring.

The C1000 is completed with a wooden case, finished in rosewood veneer, the overall dimensions being 19 in. wide × 6½ in. high × 10¼ in. deep.

The electronics

The basic circuit can be seen in the block diagram. The disc input stage consists of a direct coupled cascoded differential amplifier with constant current source. This is followed by a further cascode stage with constant current source, and finally a push-pull inverted Darlington class A output stage. The equalisation, as already stated, is provided by feedback via the linear equaliser.

Tuner and Aux 1 inputs have their own emitter-follower stages with current sources, whilst Aux 2 does not have any such stage and goes straight to the next.

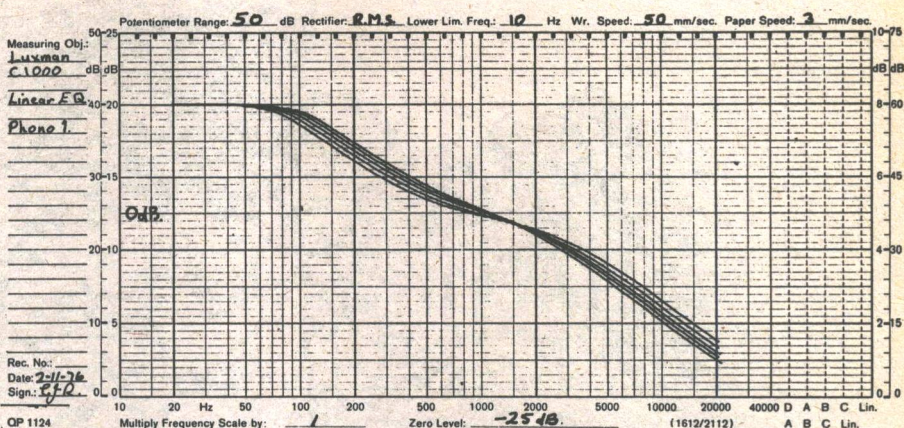
From the input stages, the signal goes to the tape circuits comprising emitter followers with constant current sources, and then on to the balance, attenuator and volume controls.

The signal then goes to a flat amplifying stage, which consists of a DC coupled cascoded amplifier with current sources. If the tone controls and filters are switched out, the signal then goes direct to the output.

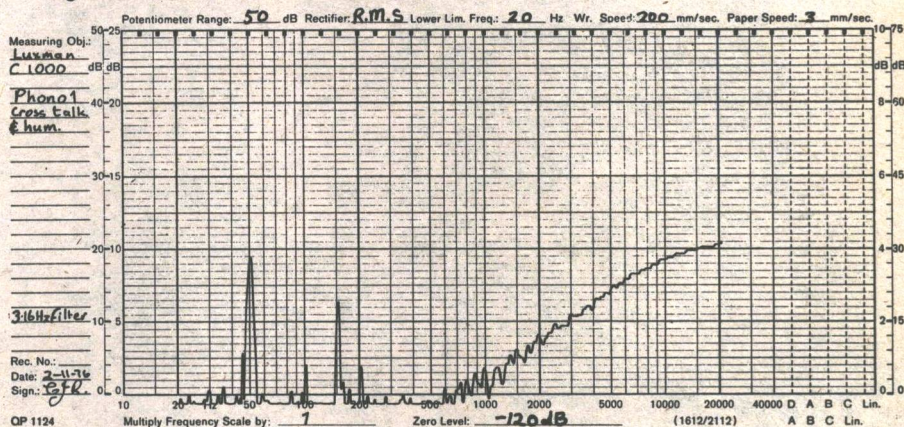
The tone controls and filters consist of direct coupled, unity gain, emitter follower stages with constant current sources, achieving their characteristics via negative feedback.

Testing for trouble

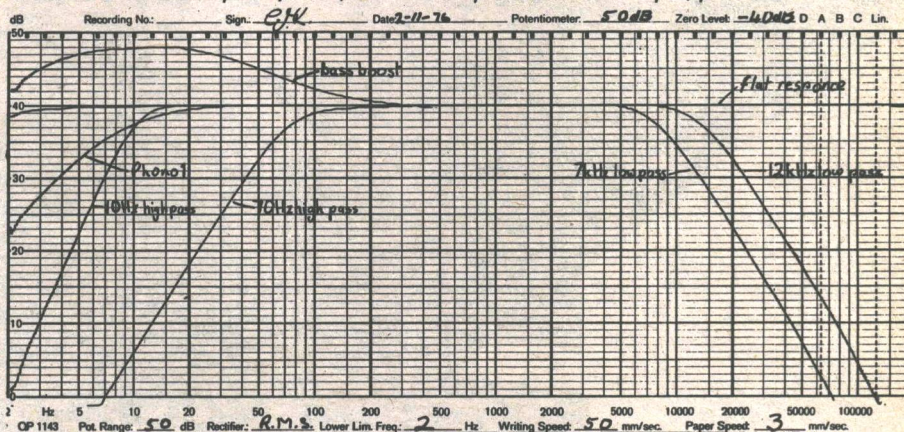
All the normal measured parameters are shown in the accompanying table, all of which equal or better spec. The only point which causes concern is the overload of the final stage. Overload measured at tape out gives a very good figure of 43dB, equal to 400mV in at phono 1 and 2. Overload measured at the output shows only 23dB, equal to 35mV in at phono 1 and 2. This, of course, is with volume at max-



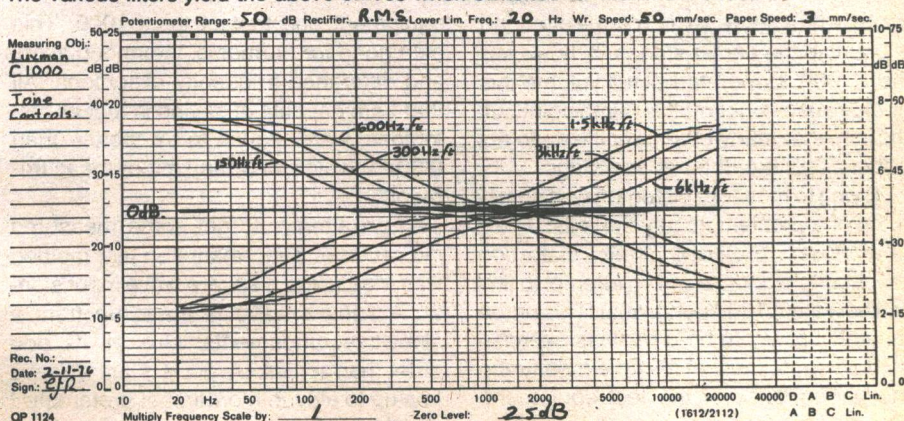
The linear equaliser makes a small correction to the bass or treble by adjusting feedback on the first stages. This chart shows the subtlety.



Crosstalk with hum superimposed, for the all-important Phono 1 input, produces this trace.

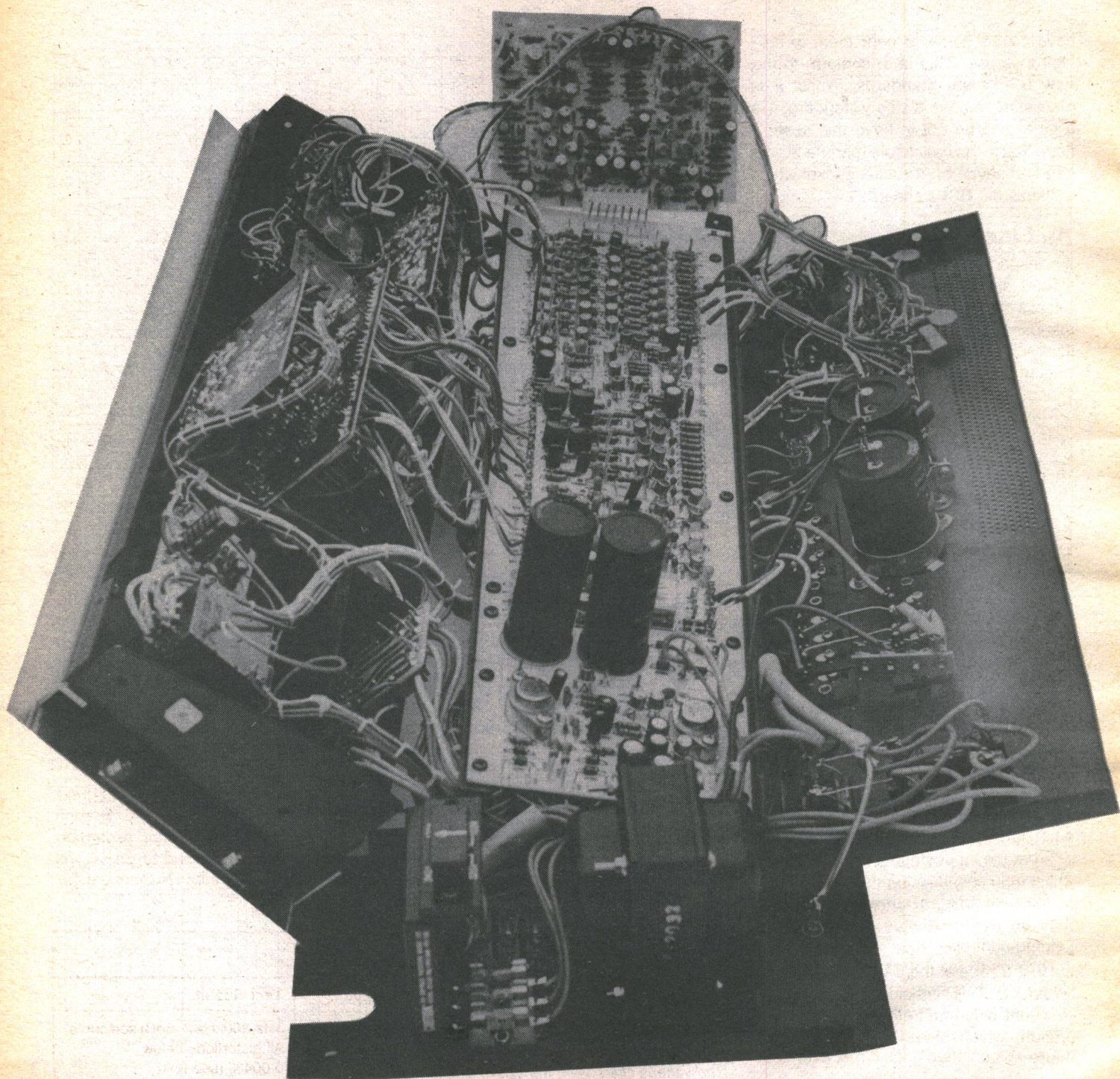


The various filters yield the above curves when switched for maximum effect.



Tone controls, at maximum and minimum, for various turnovers produce this interesting array of traces.

TEST BENCH



imum; with a decrease in volume overload is equal to the earlier stages. If, however, the C1000 is operated at full volume this could cause concern. It is fair to point out, though, that many other amplifiers do not better 20dB overload at *any* stage.

Trying to measure distortion was something of a problem, to say the least. Bruel and Kjuer provided their distortion measuring equipment in an attempt to find out how the C1000 performed. This unfortunately proved to be a fruitless exercise in that I spent most of my time measuring the performance of the test equipment. Though it was possible to detect some distortions, it was barely possible to distinguish between the distortion of the test

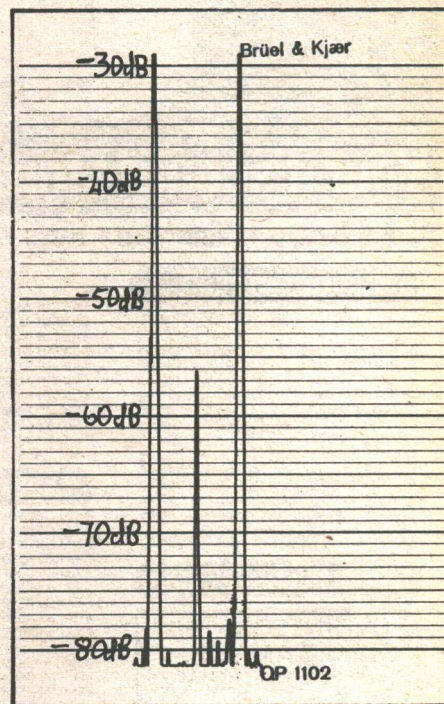
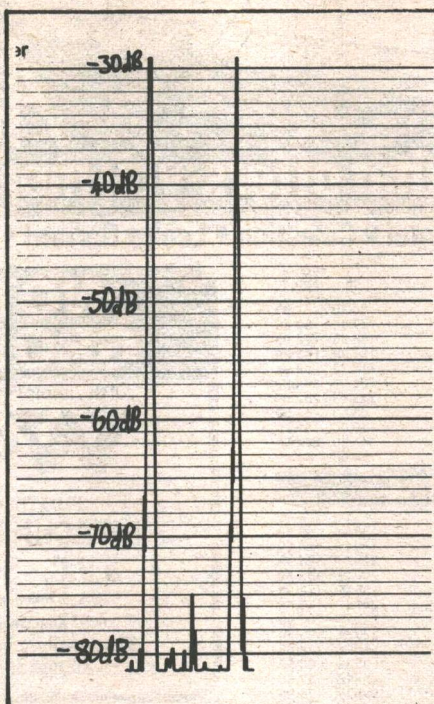
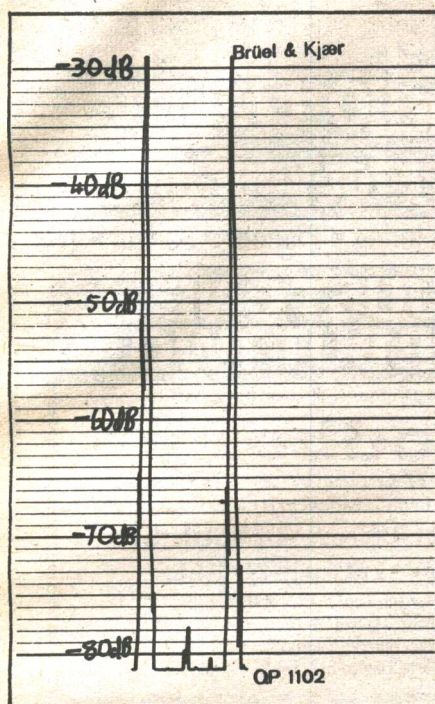
equipment and that of the C1000. This held good for harmonic, intermodulation, and difference frequency distortions. All that I am capable of saying is that all distortions were equal to or better than 0.004% which was the limit of measurement.

In an attempt to get some measured indication of performance, a test method was tried using a square wave input signal. A square wave is made up from a sinewave fundamental plus all its odd order harmonics. A good square wave has up to eleventh order, but preferably it should have in excess of the 23rd harmonic. The perfect square wave should ideally contain no even order harmonics

(2nd, 4th, 6th, etc). The first problem was finding a square wave source good enough to achieve this lack of even order harmonics. This means that the square wave must have an exactly equal mark-space ratio.

A high quality pulse generator was obtained in order to adjust to the output for symmetry and give the required signal. The waveform was then analysed to find if any even order harmonics were present. For our purpose it is adequate to only inspect the 2nd harmonic, the resultant analysis being shown with the fundamental, 2nd and 3rd harmonics. From this it can be seen that in practice the input signal has the 2nd harmonic 78dB down.

TEST BENCH



1kHz input reference square-wave signal, the same through Phono 1 and also through 'another' preamplifier phono input.

This signal was then applied to the C1000 phono 1 input and the output signal analysed. It can be seen that for all practical purposes the output had a similar quantity of 2nd harmonic. Also shown is the output of an amplifier enjoying a good reputation, but which has a slightly harsh sound. From this it can be seen that this amplifier (Brand X) adds to the 2nd harmonic, so that it is now only -56dB. This figure is still quite respectable; a poor figure would be in the order of $\times 30$ dB, which too many disc input stages exhibit. A figure of $\times 70$ dB or better is outstanding.

This test method, then, gives an indication of how a disc input stage will sound, but in the case of the C1000 it still shows no defects. This I consider to be due to the excellent disc input stage circuit configuration, which provides excellent symmetry.

Listening in

Listening tests showed just about as much as did measurements. Comparisons were made between the C1000 and other high quality preamplifiers, but this only served to show up the faults of the others. A straight wire comparison test was made by using an inverse RIAA network to feed the phono input with a tape signal. Switching between this input and feeding direct into the power amps used, we tried to see if it was possible to hear if the C1000 made any difference. *It did not.*

Having conducted all the tests, both objective and subjective, that I know how to, I find it frustrating to be unable to find any audible faults whatsoever.

I can only state that apart from the possible overload condition already mentioned, the performance of the C1000 is beyond reproach. Whether or not the C1000 is worth £500 is still a matter for debate. It is obvious that apart from a preamplifier whose performance is second to none, you would also be paying for tone controls and filters that, assuming the rest of the system to be of the same standard, should never need to be used. Also you are paying for the touch mute and attenuator facilities which again are a luxury.

If, however, you are in the market for the very best in pre-amp quality and performance, the C1000 can be totally recommended, if you can afford it. If we were talking of cars, then the subject under discussion would be a Lamborghini or Rolls-Royce.

It only remains for me to express great thanks to F. M. Hughes and Gordon King for their advice and help regarding the square wave tests and to B&K Labs for loaning the test equipment to make the tests possible.

Luxman C1000 Specification

Parameter	Manufacturer's Spec.	Test Result
Frequency response	2Hz-80kHz (-0.5dB)	3Hz-200kHz (0.5dB) see curve
Total harmonic distortion	better than 0.007% (Pre. out 2V, 20-20kHz Aux)	All distortions below 0.004% (see text)
Intermodulation Distortion		
Signal-to-noise ratio	Phono 1 better than -65dB	-65dB unweighted (see curve)
Phono Overload	420mV (1kHz, 0dB gain)	400mV = 44dB @ tape out 35mV = 23dB @ pre out (see text)
RIAA Equalisation	Within ± 0.2 dB	Within ± 0.1 dB
Crosstalk & Hum	—	-100dB (see curve)
Input Sensitivities and Impedance		
Phono 1	2.5mV ± 5 dB 30-100k Ω	agreed
Phono 2	= 1.4mV to 4mV. 50k Ω	agreed
Tuner		agreed
Aux 1		agreed
Aux 2	150mV	agreed
Tape 1 & 2		agreed
Outputs		
Pre-out	1V Max 13V	1V Max. 15V
Tape	150mV	agreed

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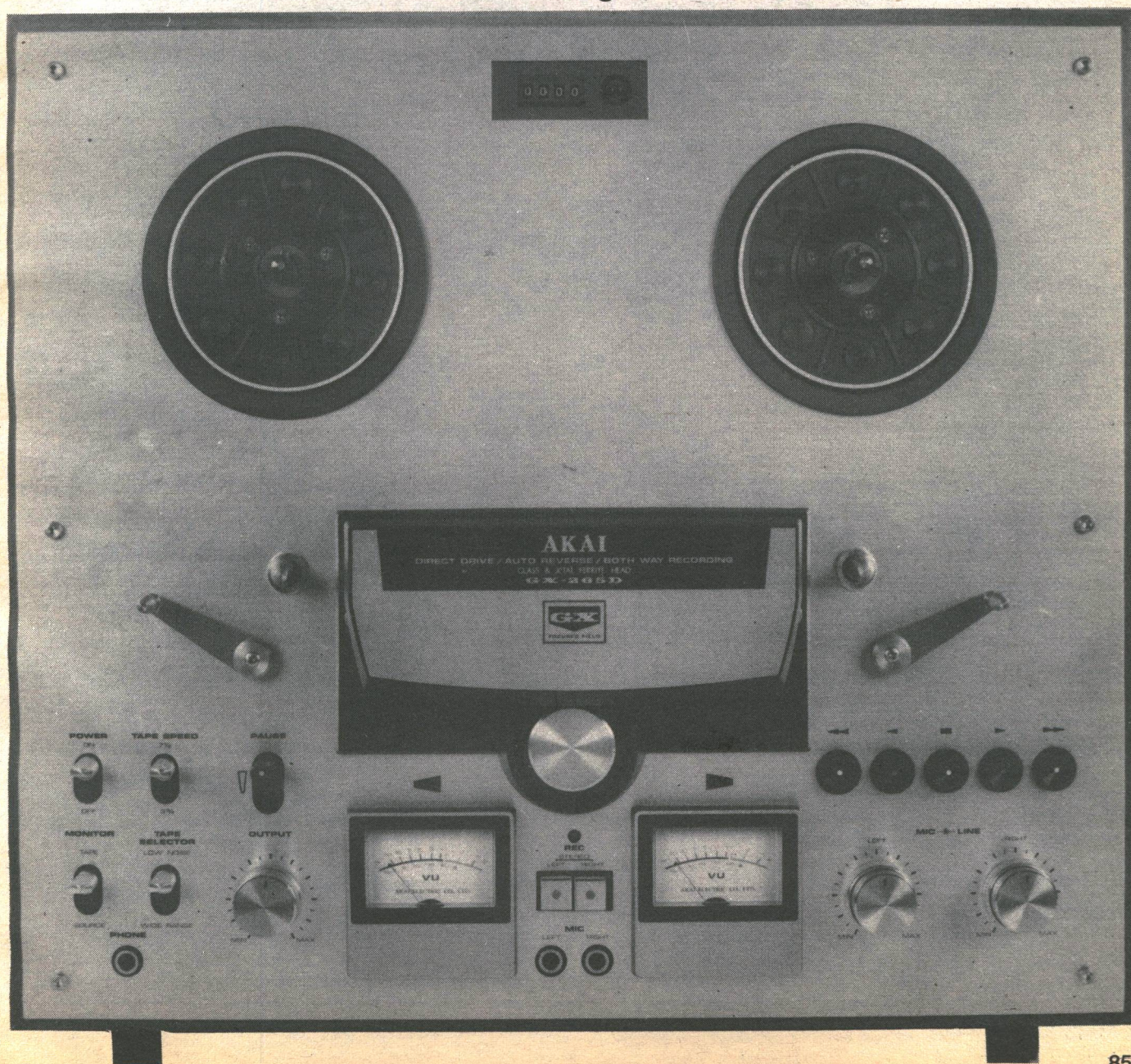
ADDRESS

Akai GX265D tape recorder

Despite rising cassette deck sales in recent years, the reel-to-reel machines have also managed to maintain their hold on the market.

For quite a long time, Akai have produced a particular type of domestically-orientated reel-to-reel deck, with their latest model, the GX265D, combining certain sophisticated features with tape economy. It employs 7-inch reels with $\frac{1}{4}$ -track working at the two lower speeds of 19 and 9.5cm/sec, ($7\frac{1}{2}$ ips and $3\frac{3}{4}$ ips).

F. M. Hughes



TEST BENCH

Although the machine is fairly compact at 44.1cm W (17.4in.) by 40.4cm H (15.9in.) and 20.7cm D (8.2in.) it is built solidly and weighs 16.6kg (36.5lb). The clean, symmetrical panel layout is the first indication of its potential. The left/right tape paths are balanced around a central capstan and pinchwheel, the result, with suitable changeover circuitry, being a deck which will operate equally as well in the forward or reverse modes, both in record and playback. The changeover may be affected automatically via a sensing foil spliced into the tape, the deck automatically muting during this operation

and fading up slowly as the drive motor reaches full speed.

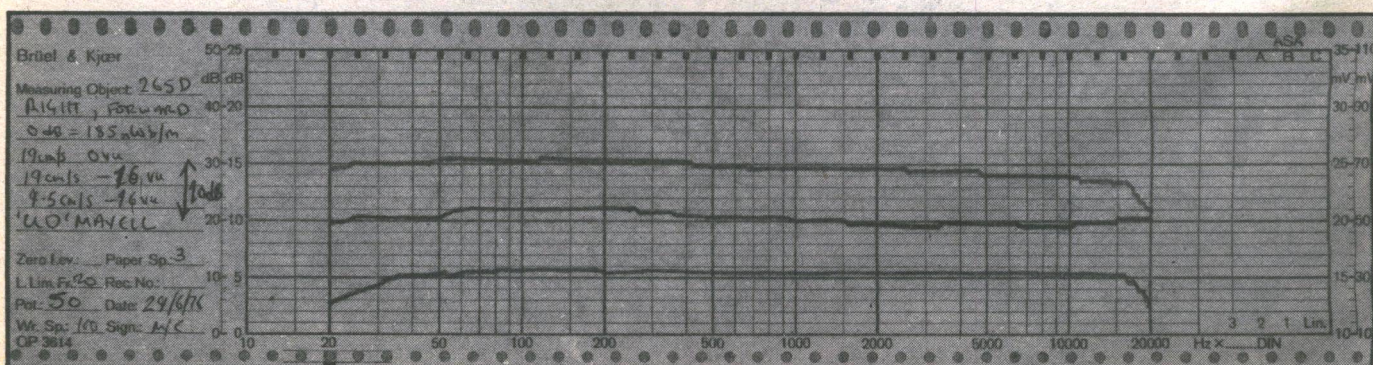
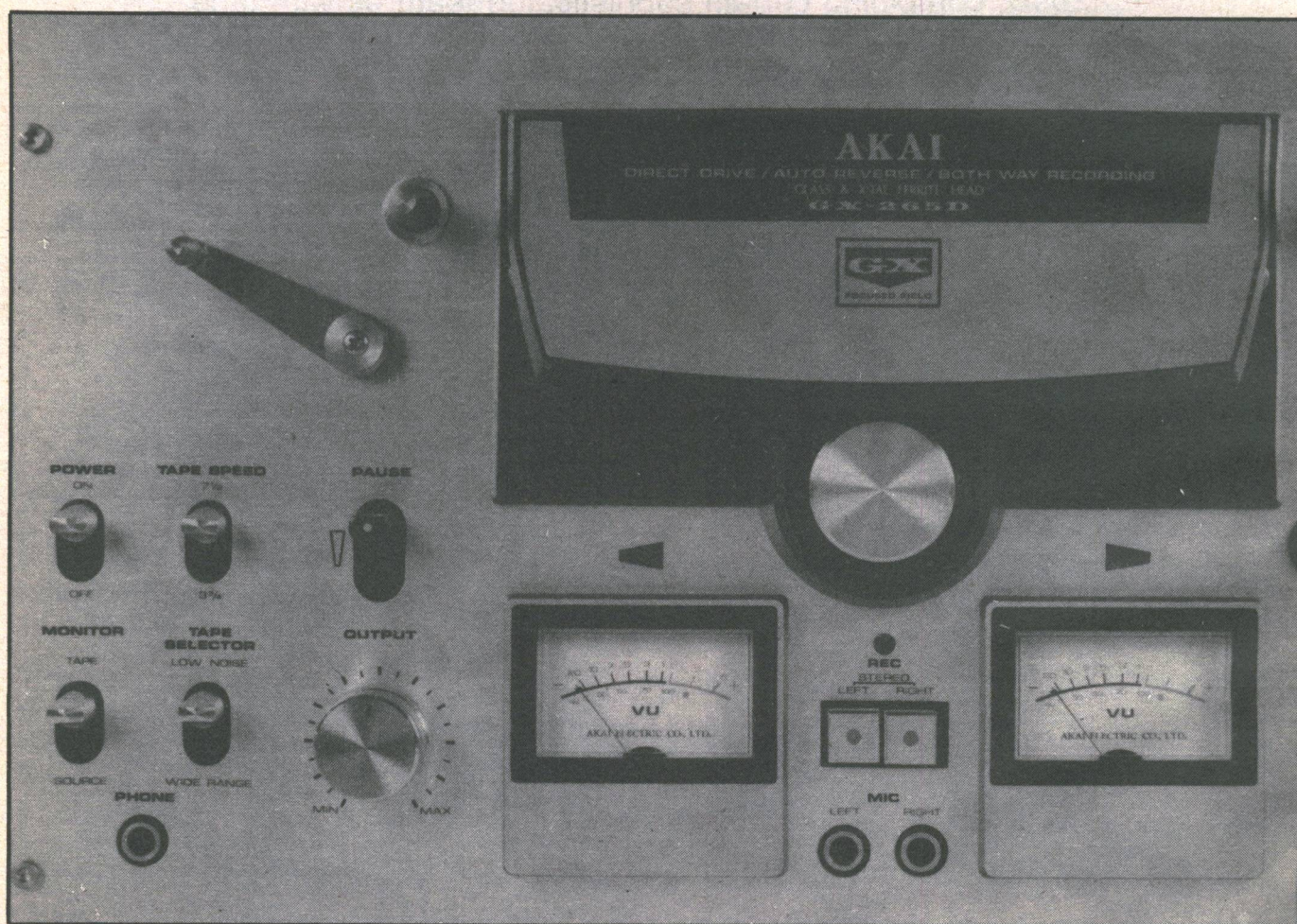
A row of light-touch push buttons is responsible for the transport functions, which are under solenoid control for rapid and positive action. Independent gain controls are provided for both left and right channels as well as for microphone and line input, thus allowing mixing of the two during recording. An output level control is also present which is independent of the replay meter readings. The tape selector alters bias to cater for normal and low noise/high output tapes.

The important specifications quoted by

the manufacturer include a wow and flutter of 0.06% RMS at 19cm/sec and 0.09% at 9.5cm/sec. Distortion at 0VU is given as 0.5% at 1kHz, with signal-to-noise ratio unweighted as 56dB referred to +6VU. The frequency responses are stated to be within ± 3 dB limits 30Hz to 25,000Hz at 19cm/sec, and 30Hz to 19,000Hz at 9.5cm/sec. Such a large bandwidth promises rather clearer high frequency performance than is offered by cassette systems.

Design Components

On the technical side there are a number



Three response traces for the 265D. Top is 19cm/s, 0VU, next is 19cm/s at -16VU and finally is 9.5cm/s at -16VU.

of important features which will be appreciated by those familiar with quality tape recorders.

Akai build their own motors and in this respect have spared little with regard to the 265D. In all, three are fitted — two eddy current motors for reel drive and tape tensioning, and one direct drive servo controlled capstan motor with combined flywheel.

The action of all the motors can be reversed by electrical changeover, and the tape speed is also under electronic control. As a result no belts or pulleys are necessary, which makes for both a stable as well as a more reliable transport.

A similarly foolproof approach is employed with respect to the head block design. Six of Akai's own long life heads are used to provide erase, record and playback sets for both forward and reverse modes, the erase section being combined with the record head. The head construction involves the setting of a high performance single crystal ferrite gap structure in a glass matrix to protect it from damage. These mirror finish heads rarely need cleaning and should last virtually indefinitely, but as with all heads they do require regular demagnetising.

Operation and performance

This deck was a delight to use, with relatively easy tape threading, faultless controls and positive transport modes — rapid wind, braking and reverse.

At the higher speed of 19cm/sec the mid band dynamic range was comparable to that of a typical Dolby-equipped cassette recorder.

However, the overall sound quality was rather better than cassette in two distinct respects. Both the low and high frequencies were reproduced with greater clarity and less fall-off, and in addition, the GX265D proved to be virtually free of such problems as the imprecise stereo imagery and the dropouts of momentary sound level dips frequently encountered with cassette recorders.

The lab tests showed a useful improvement over the specification. The wow and flutter results, DIN peak weighted, are taken for a full record/replay cycle and confirm the RMS-based specifications. Wow was not subjectively audible at 19cm/sec, but on very critical programmes such as piano and organ, slight wow could be heard at the slower speed. However one would in any case expect to use this for less critical material — for example background or party music where a single

reel of double play tape will provide four hours of uninterrupted programme, via the auto reverse.

The frequency responses were fine and comfortably exceeded Akai's claim, with the allowable tolerance measuring virtually half the $\pm 3\text{dB}$ quoted. The range is not only usefully wide, covering the entire audio bandwidth, but is also well maintained at high record levels. For example, running at 19cm/sec a 15kHz signal may be recorded at the nominal 0VU full record level with virtually no loss. A cassette deck would be lucky to repeat this performance even at a level 15dB below 0VU, unless some special facility were incorporated. (See JVC 1770B review — Super ANRS facility.)

At 0VU, distortion measured low at 0.35% third harmonic (the other harmonics are negligible with tape), and did not rise above 3% until +10dB was attained at 1kHz, thus showing a good

headroom before overload. With 'Super' tapes it is permissible to peak at +2 or 3dB on the meters when recording. The dynamic range is comparable with the best of today's disc and broadcast material, and is certainly better at the higher frequencies than any compact cassette deck currently available.

Conclusion

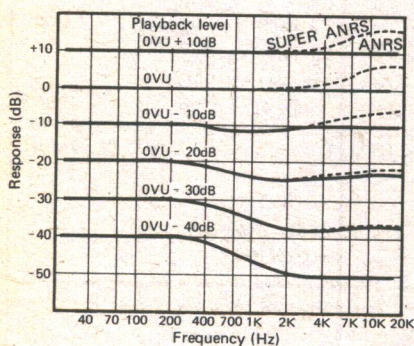
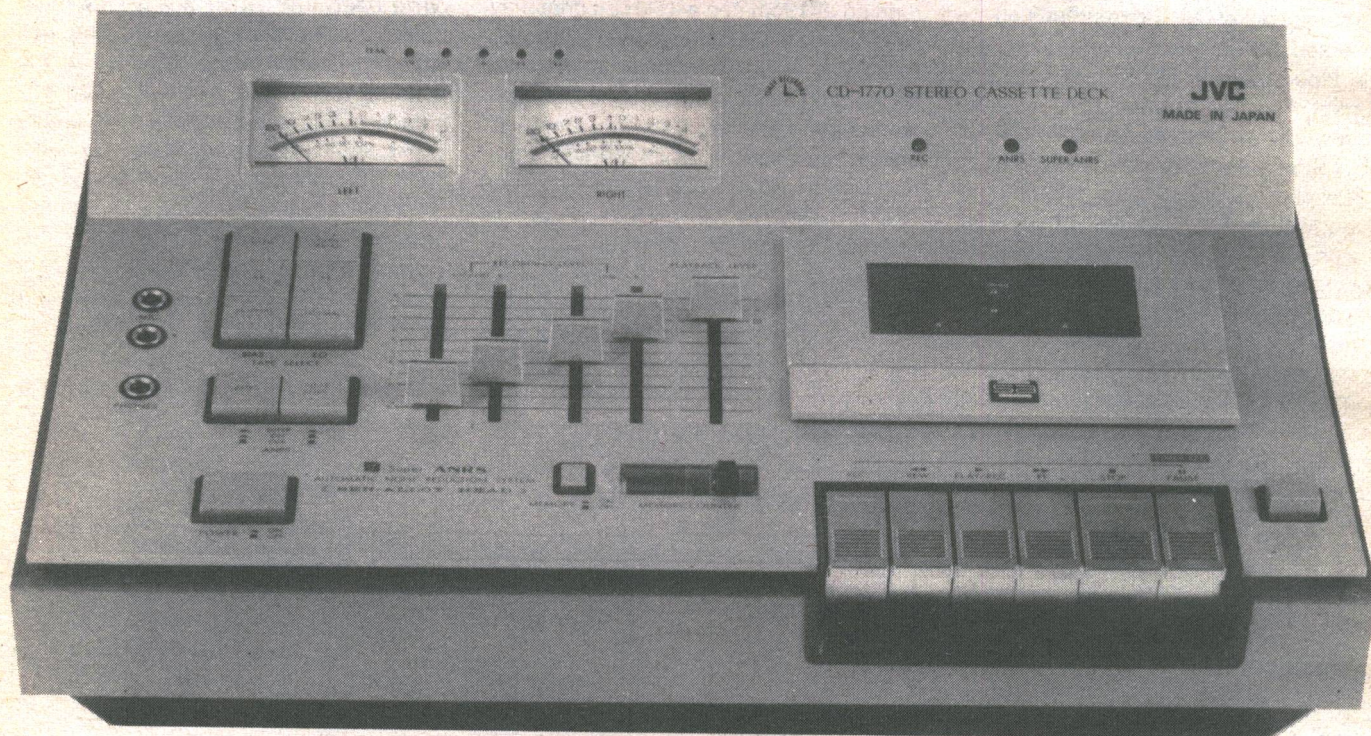
While open reel tapes are clearly more clumsy to use than cassettes, the well thought out operational facilities of the GX265D do much to bridge this convenience gap. Subjectively the sound quality of the 265D at 19cm/sec is audibly better than that produced by cassette, and certain other advantages such as long uninterrupted play time are undeniable. The overall engineering of this particular deck is also to a high standard, and thus the value for money must be classed as pretty good.

SPECIFICATION CHECK

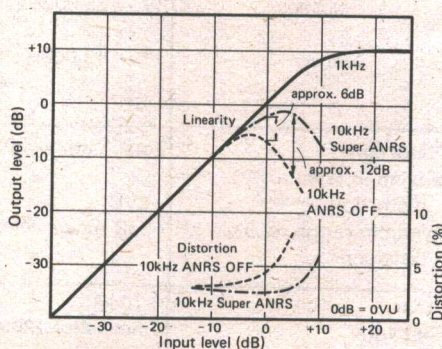
Parameter	Specification	Result
Wow & flutter 19cm/sec 9.5cm/sec	0.06% RMS playback only 0.09% RMS playback only	0.1% typical forward 0.08% typical reverse 0.18% typical forward 0.15% typical reverse All — record/playback DIN peak wtd.
Playback response 19cm/sec	NAB, no tolerance	$\pm 2\text{dB}$ 30Hz — 16kHz
Record-playback response 19cm/sec 9cm/sec	30 — 25,000Hz $\pm 3\text{dB}$ 30 — 19,000Hz $\pm 3\text{dB}$	27Hz to >20kHz, $\pm 1.5\text{dB}$, 'UD' Maxell. 32Hz to 18kHz, $\pm 1.5\text{dB}$ 'UD' Maxell. (forward & reverse.)
Distortion Maximum level for 3% distortion Dynamic range ref. 3% distortion	Total harmonic 0.5% at 0VU +6VU 56dB (unspecified)	0.35% third harmonic at 0VU +10VU 65dB unweighted, excl. hum
Erase Fast wind	>70dB 1.5mins for 1200' tape at 60Hz	agreed 1.75 mins at 50Hz
Channel balance at 1kHz Forward Reverse	N/S N/S	$\pm 0.5\text{dB}$ $\pm 1.0\text{dB}$ (1)
Sensitivities Mic DIN Line	0.25mV/5K 3mV 70mV/150K	agreed agreed DIN compatible agreed
Outputs Din Line phones	0.5V 0.775V 30mV/8 ohms	agreed agreed (Load >20K ohms) agreed (Insufficient for high impedance models)
Typical Price — £300.		

JVC 1770B Cassette deck with super ANRS

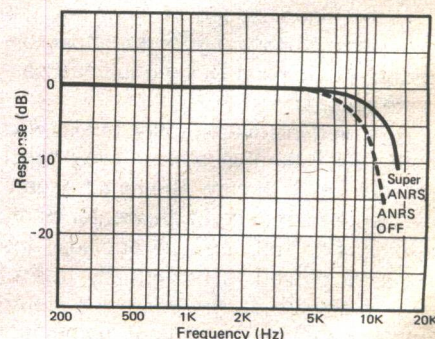
F. M. Hughes



ANRS/Super ANRS playback curves



Rec./replay linearity on normal tape



Rec./replay response at 0VU

JVC, the Japanese company who are possibly best known for their development of the CD-4 quadrasonic disc system, have recently released a new range of hi-fi equipment, including a number of cassette decks. From these, the top line model has been selected — the 1770B, which incorporates an interesting new facility called 'Super ANRS'.

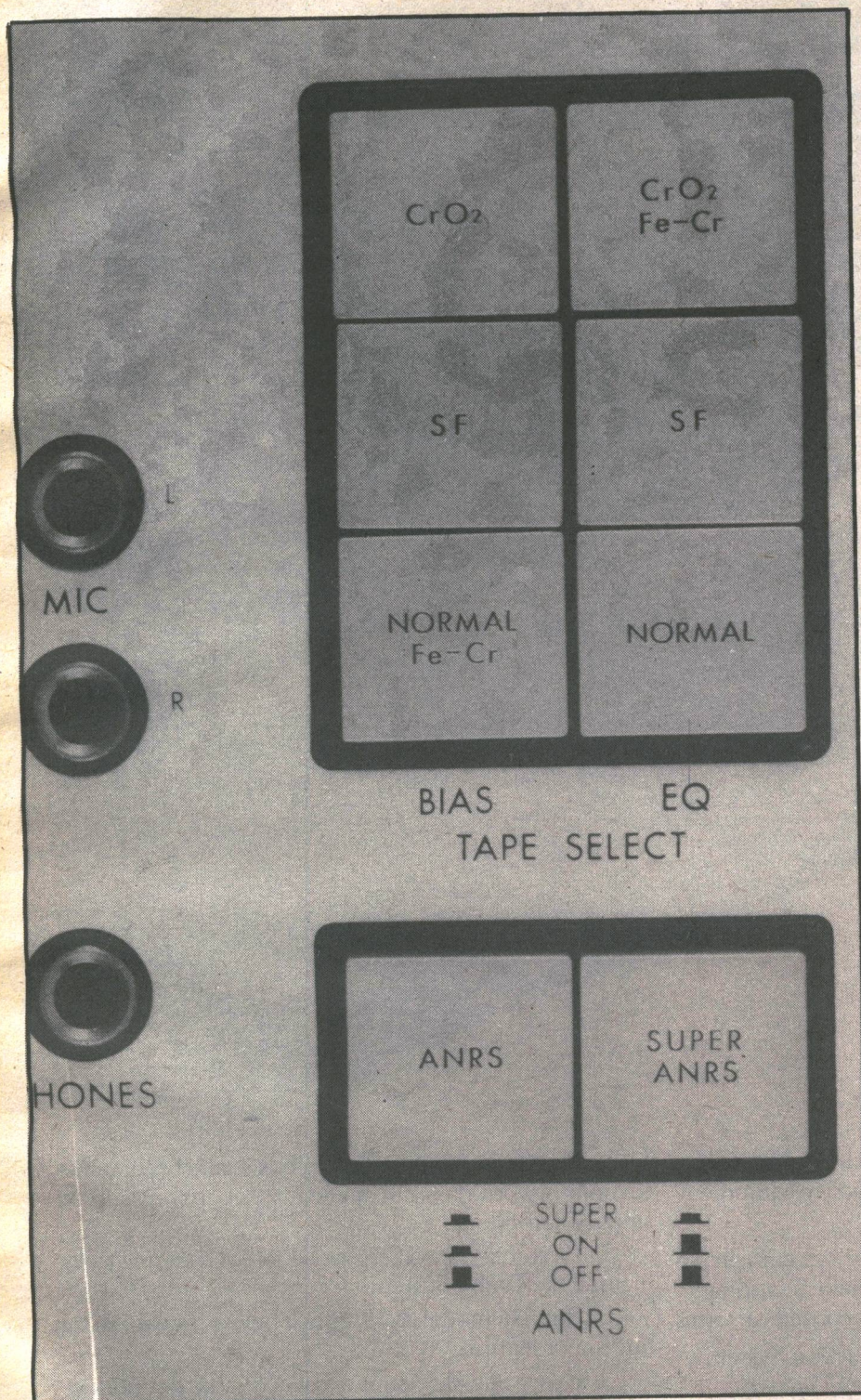
For some years now JVC have been fitting a noise-reduction system to their cassette machines which although similar

in action to the better known Dolby B, nevertheless differs both in principle and in circuitry. However, JVC's ANRS or 'Automatic Noise Reduction System' is sufficiently similar to Dolby B to permit a satisfactory interchange of recorded material between the two, although with the better quality of machines, some anomalies such as residual 'pumping' or 'breathing' effects may be noted on difficult programme material such as close miked piano. Interestingly enough, the

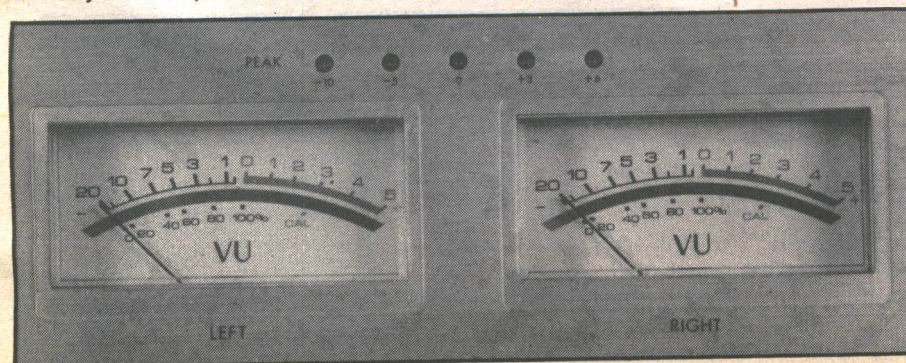
cheaper JVC decks such as the CD1740 incorporate Dolby B, while ANRS is reserved for their more expensive models.

Despite the use of Dolby and ANRS there still remains a problem with cassette systems over dynamic range — the usable region between noise at low levels and distortion at the highest levels. Great improvements have been achieved in reducing noise and bringing down mid-band distortion to satisfactory levels, and

TEST BENCH



Buttons for equalisation are perfectly explicit, and the ANRS switching is versatile and easy once the panel codes are understood.



VU meters with wide scales are backed up by peak indicators.

as a result, the frequency responses of modern decks are both more linear, as well as more extended than was considered possible a few years ago, with 30Hz to 16kHz ± 2 dB quite typical of the better class machines. Although in general the mid-band dynamic range is more than adequate, typically 65dB weighted, in practice it cannot be utilised owing to rapidly increasing overload at the higher frequencies. Wide range programme may have full treble content up to 10kHz, equal in amplitude to the mid-range with considerable energy still present at 15kHz. In order to satisfactorily record such programme on cassette the overall record level must be considerably reduced to avoid loss of higher frequencies which in turn results in a poorer signal-to-noise ratio.

With less demanding material the problem is likely to pass unnoticed. Some of the more advanced cassette recorders such as the Nakamichi 600 exhibit this problem to a lesser degree owing to skilful head design and improved electronics, but the solution cannot be realised by these methods alone.

A major improvement has been made possible by JVC's development of the new 'Super' process as added to their established ANRS circuit. However, an unfortunate side effect is that the recorded results are incompatible with other decks that lack this specialised facility.

Essentially 'Super ANRS' is a two process system. It consists of the basic ANRS package, which like Dolby B, operates at low levels to mask background noise, but in addition it possesses a high level process to reduce high frequency distortion and hence improve overall dynamic range. This 'Super' circuitry applies a progressive compression of the higher frequencies from -15VU and above, to a maximum of around 6dB for a 15kHz signal recorded at 0VU. For example, an input at 10kHz, nominally 0VU would be recorded on the tape at -5VU with a consequent reduction in distortion, especially as regards intermodulation due to tape saturation. Upon replay a corresponding and variable treble boost would be applied to restore the higher frequencies to their correct levels.

The measured improvement shows as a reduction in high frequency distortion. A 3% figure for 10kHz at +5VU is quoted, plus a 5dB dynamic range increase at the same frequency. (See curves.) This does much to bridge the gap between cassettes and the slower reel-to-reel recorders. Some reservations still remain, however, as any process of the compander/expander type introduces a degree of transient degradation. Additionally, imperfections

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Of course not all Ferguson Stereo Cassette Decks include the Dolby System.

But like model 3279 shown below they do share one major feature.

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JVC 1770B Cassette deck with super ANRS

in the tape, dropout etc, confuse the deprocessor and can upset the result.

Returning to the 1770B, a rundown of the remaining features is in order. Presented in 'desk' form, the rear section of the fascia is angled forward some thirty degrees in order to improve visibility of the record level meters, these incidentally of the normal slow indicating VU type.

Adjacent to the meters is a row of five LED indicators which complement the meters and indicate rapid peak levels at -10, -5, 0, +3 and +6VU.

The controls are neatly arranged with the piano type transport keys on the right and the tape selectors, slider controls and the like on the left. A block of six broad push buttons are responsible for tape bias and equalisation settings, with provision made for chrome or ferrichrome plus super and normal ferric types. Immediately in front of these are the ANRS and Super ANRS buttons. Five long travel sliders allow independent left/right adjustment of record level for microphone and line/DIN inputs. A memory rewind facility is incorporated, this combined with the counter and triggered by a return to a '000' counter reading.

An interlock system is also included so that the deck may be pre-set in the record mode with the power off. A suitable time switch can then be used to start the machine thus allowing unattended recording of a broadcast or event.

The record/playback head is JVC's new Sendust construction. The leading face of the head which is exposed to wear is made of magnetic alloy first discovered in Japan during the 1930s, and consisting of 10% silicon, 7% aluminium and 83% pure iron. It possesses many of the superior magnetic properties of crystalline iron, with a similar degree of hardness but less brittleness. The result is an excellent head with a precision long life gap.

Operation and Performance

The deck proved easy to use and no operating problems were encountered, good results being achieved using Maxell UD C90 tape. The peak indicating lights were particularly useful during recording, with the slower VU meters providing both longer term average level indication as well as information concerning channel balance.

Subjectively this sound quality was particularly clear with a definite improvement on Super ANRS when recording high

level, wide range material. In consequence, the record level could be set nearer peak modulation allowing a higher level to be recorded on the tape before compression. This was fortunate as the level of background hiss was somewhat higher than with other top quality machines. No wow was detected during the listening tests and stability was classed as good, with satisfactory stereo imagery and a low incidence of dropout.

Under lab conditions, the wow and flutter over a record/replay cycle measured 0.07% Din peak weighted - (a worst case result) indicative of a fine performance. The frequency response virtually met the specification as regards upper and lower limits, and bettered the $\pm 3\text{dB}$ claim by attaining $\pm 2\text{dB}$: pretty good considering the price. Distortion was particularly low. Using Maxell UD tape I recorded

0.15% third harmonic at -10VU, with 0.6% at OVU and 3% at +6VU.

The signal-to-noise ratio was considered fairly good and produced a total dynamic range of 62dB CCIR weighted, using ANRS. In practice this is further improved to a slight degree by the extra high frequency headroom offered by the 'Super' option.

Conclusion


The deck should prove reliable as its construction is to a high standard and, provided that the incompatibility of the Super ANRS facility is noted, the 1770B provides a good performance for the money. If a reasonably priced, quality cassette deck with more of the genuine treble sparkle of the original programme is your requirement, the 1770B is well worth considering.

Parameter	Specification	Result
Wow & flutter	0.1% DIN 45500	0.07% DIN peak record replay
Frequency response	30 - 16000Hz $\pm 3\text{dB}$ chrome 30 - 15000Hz $\pm 3\text{dB}$ ferric	42Hz - 16kHz $\pm 2.5\text{dB}$ 40Hz - 15kHz $\pm 2.0\text{dB}$ (see graph)
Replay Only	N/S	40Hz - 10kHz $\pm 2.5\text{dB}$
Signal to noise ratio	52dB ANRS off for 3% THD, 1kHz	52dB unwt'd (excl.hum.)
Azimuth	—	within test tolerance
Dynamic range	N/S	62dB CCIR wtd
Distortion	1.2% THD at OVU ferric 1.5% THD at OVU chrome	0.5% 1.0% (0.15% third harmonic at -10VU ferric.)
Dolby level match	N/S	-1.3dB on ANRS zero cal.
Separation 1kHz 10kHz	35dB N/S	37dB 30dB
Peak LED indicator scaling	+6dB +3dB 0dB -5dB -10dB	within 1dB of nominal value, fast response. Very useful
Fast wind (Ferric tape used: Maxell 'UDXL' on 'super ferric' settings.	75secs C60	agreed
Inputs/sensitivities	mic 0.2mV 600 ohms line 78mV 100k ohms DIN 15mV 8.2k ohms	agreed agreed agreed
Output/levels Line DIN Headphone	500mV variable 500mV variable 0.3mW 8 ohms	agreed agreed —
Dimensions	8.8cm H \times 42cm W \times 27.7cm D.	
Weight	5.5kg	
Typical price	— £200	

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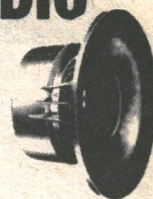


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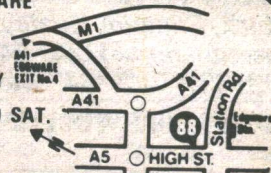
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Aiwa AD1600 (Cass. Dolby)	Prices on application

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Aiwa AD6300 (Cass. Dolby)	
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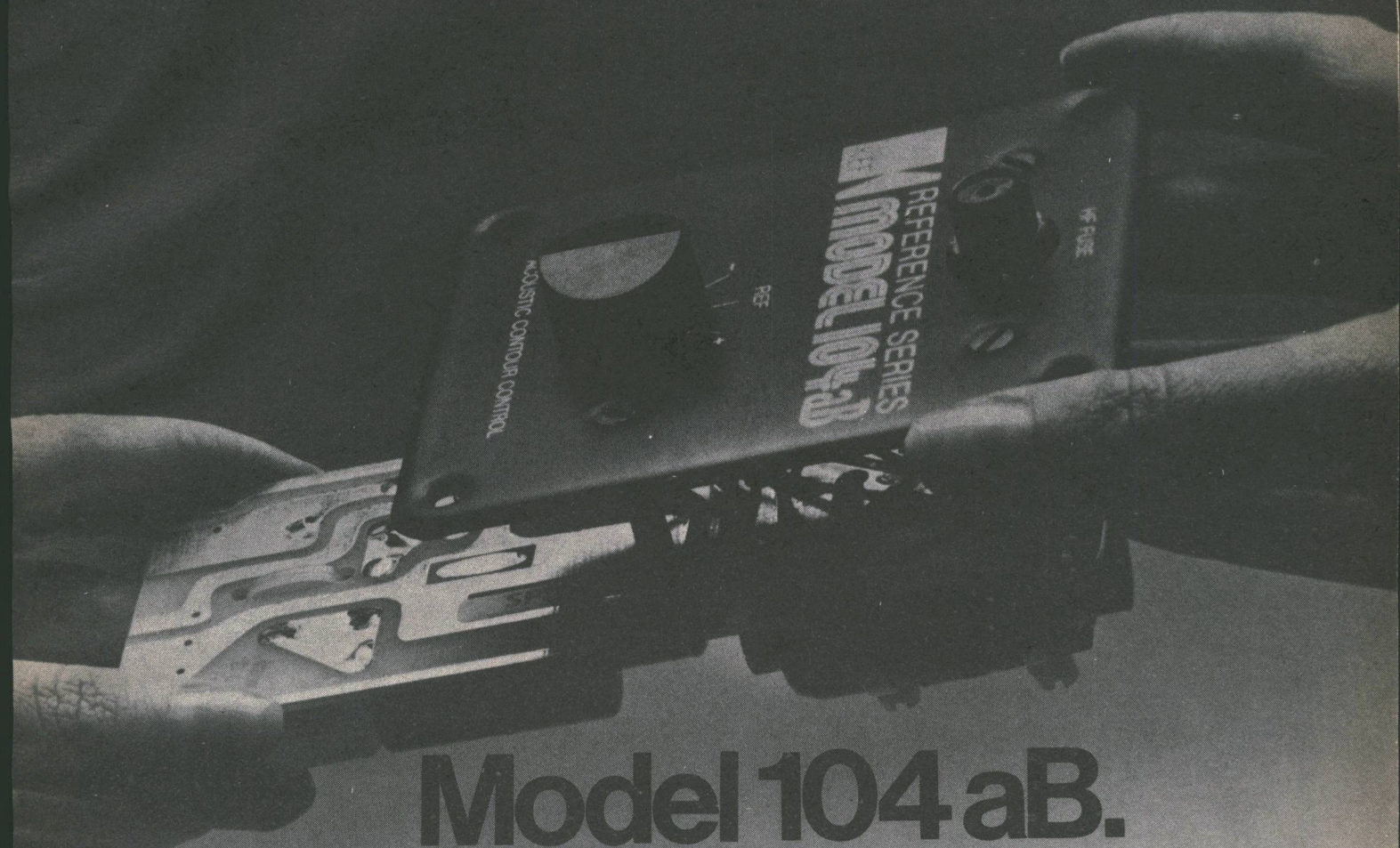
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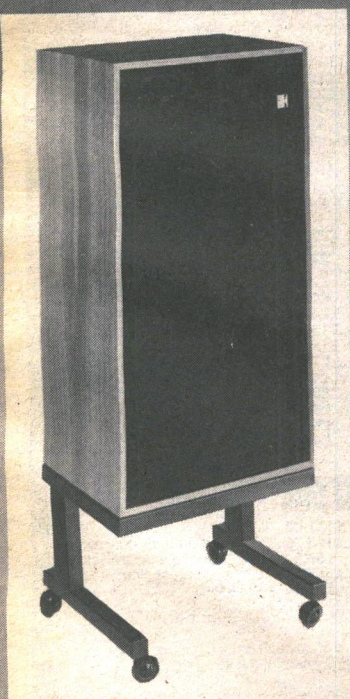
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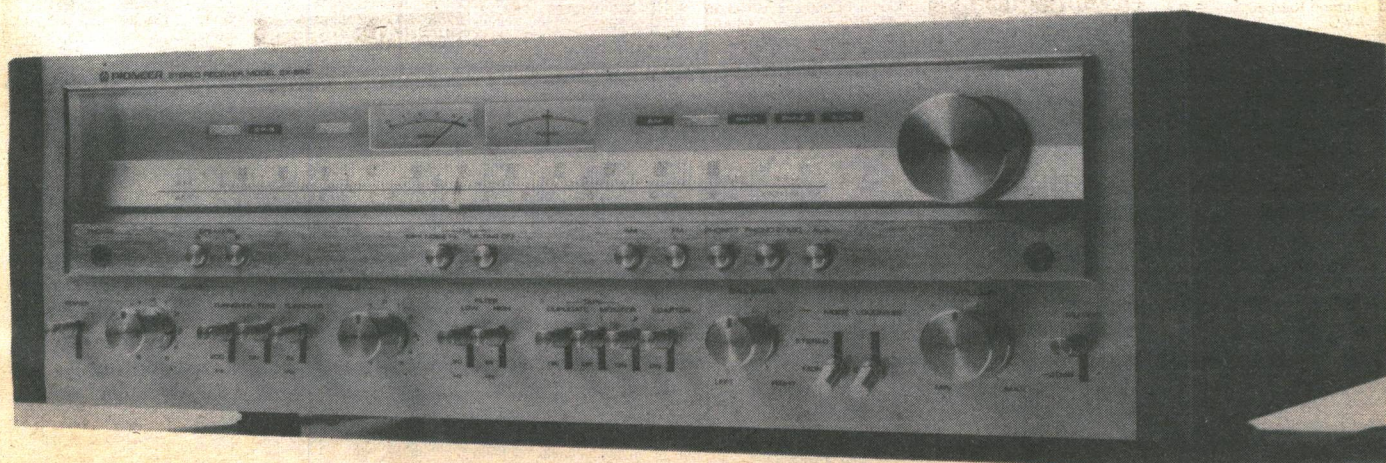
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SA 6300	£78.00
SA 7300	£130.00
SA 7500	£192.00
SA 8500	£220.00
SA 9500	£294.00
SA 9900	£437.00

Tuners

TX 5300	£78.00
TX 7500	£152.00
TX 9500	£211.00

Turntables

PL112D	£60.00
PL115D	£71.00
PL117D	£102.00
PL510D	£122.00
PL 530	£180.00

Cassette Decks

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CTF 6060	£179.00
CTF 7070	£201.00
CTF 8080	£242.00
CTF 9191	£262.00

TEAC

Cassette Decks	
A 170	P.O.A.
A 400	P.O.A.
A 420	P.O.A.
A 460	P.O.A.
A 650	P.O.A.
PC 10	P.O.A.

Dolby Units

AN 80	P.O.A.
AN 180	P.O.A.
AN 300	P.O.A.

DBX Units

A 117, A 122	P.O.A.
A 119, A 124	P.O.A.

REVOX

A77 1102/1104	£457
A77 Dolby	£560.00
A77/1102/1104 H	£520.00
A700 4/2 Tracks	£995.00

SONY

SQ Decoder & Amplifier	
SQA 2030	£114.00

SQ Decoder

SQD 2010	£120.00
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Tuners

ST70	£48.50
ST88	£56.00
ST 2950F	£89.00
ST 3950	£136.00
ST 5130	£168.00
ST 5950SD	£200.00

Receivers

STR 7015	£116.50
STR 7025	£128.00
STR 7035	£148.00
STR 7055A	£180.00
STR 6800D	£275.00
STR 5800	£230.00
STR 4800	£185.00

Amplifiers

TA 70	£48.50
TA 88	£56.00
TA 1630	£75.00
TA 2650	£96.00
TA 3140	£88.00
TA 3650	£136.00
TA 5650	£200.00
TA 8650	£506.00

Speakers (Pair)

SS 70	£24.00
SS 5088	£44.50
SS 5177 (teak)	£60.00
SS 5177 (walnut)	£60.00
SS 3050	£140.00
SS 5050	£222.50
SS 8150 (each)	£650.00
SS 2030	£60.00
SS 2050	£92.00
SS 2070	£110.00

Cassette Radios

CF 170L	£52.50
CF 210L	£58.75
CF 320	£72.95
CF 440L	£86.25
CF 560A	£120.00
CF 580	£210.00
CF 140L	£46.75

Cassette Recorders

(Stereo)	
TC 117	£66.50
TC 135SD	£105.00
TC 136SD	£124.00
TC 138SD	£165.00
TC 153SD	£155.00
TC 177SD	£352.00
TC 186SD	£116.50
TC 204SD	£137.50
TC 206SD	£155.00
TC 209SD	£216.50
TC 144CS	£132.50
TC520CS	£125.00
TC 525	£110.00

Cassette Recorders

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TC 65	£32.60
TC 673	£28.80
TC 150	£77.00
TC 182	£137.50
TC 207	£47.50

Stereo Tape Recorders

and Decks	
TC 377	£158.00
TC 645	£235.00
TC 755	£320.00
TC 756/2	£352.00
EL 5	£295.00
EL 7	£460.00

Turntables

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PS 1700	£70.50
PS 3300	£104.00
PS 6750	£148.00
PS 4300	£130.00

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HMK 20	£150.00
HMK 30	£185.00
HMP 40	£172.50
HMK 40A	£230.00
HMP 70	£238.50
HMK 70	£375.00

Television

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TV 110UK White	£79.50
TV 144UK	£96.00

Colour Television

KV 1340UB	£225.00
KV 1810UB	£262.50
KV 2000UB	£290.00

Car Stereo

TC 24FA	£59.00
SS 25 pair	£12.50

Prices correct at the time of going to press

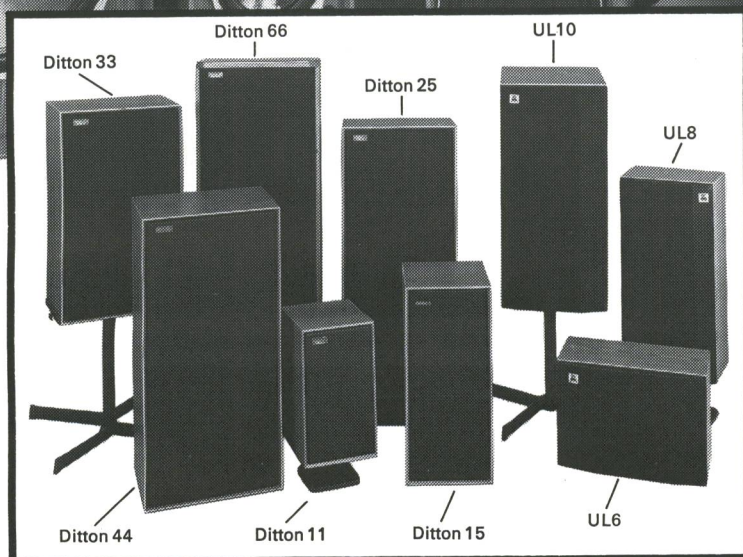
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	Centimetres	Inches			Min	Max	
Ditton 11	35 x 20 x 25	14 x 8 x 10	9.9	25 W	15	30	35 Hz - 28 KHz
Ditton 15	53 x 24 x 23	21 x 9½ x 9½	4.2	30 W	10	30	30 Hz - 15 KHz
Ditton 33	61 x 35 x 26	24 x 14 x 10½	5.5	40 W	20	50	40 Hz - 28 KHz
Ditton 44	76 x 37 x 25	30 x 14½ x 10	4.0	44 W	20	50	30 Hz - 40 KHz
Ditton 25	81 x 36 x 28	32 x 14 x 11	2.9	60 W	15	60	20 Hz - 40 KHz
Ditton 66	100 x 38 x 29	40 x 15 x 11½	4.8	80 W	20	80	16 Hz - 40 KHz
UL 6	29 x 41 x 22	11½ x 16 x 8½	13.0	40 W	20	40	35 Hz - 28 KHz
UL 8	58 x 28 x 23	23 x 11 x 9½	8.4	50 W	15	50	30 Hz - 28 KHz
UL 10	67 x 31 x 38	26½ x 12½ x 15	18.0	100 W	25	100	20 Hz - 40 KHz

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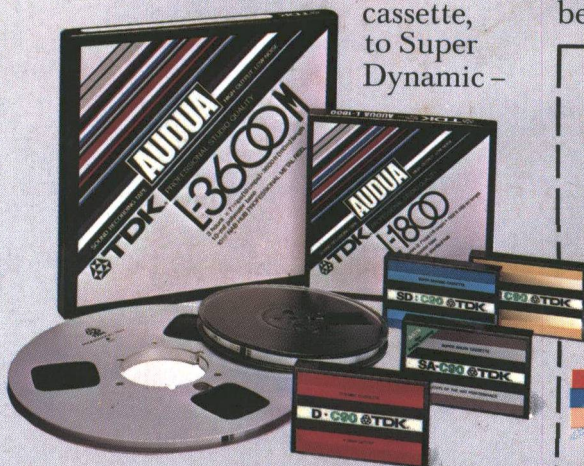
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